DOCTOR OF CLINICAL PSYCHOLOGY (DCLINPSY)

Doctorate in Clinical Psychology : Main Research Portfolio

1) Can a transdiagnostic approach be applied when working therapeutically with adults who have long term neurological conditions? A systematic review of third wave therapies ; 2) Can training improve the confidence and skills of staff in the assessment and treatment of Complex PTSD in an inpatient setting? ; 3) Injury attributions, self-criticism and psychological distress in ABI and TBI survivors.

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Award date:
2016

Awarding institution:
University of Bath

Research Portfolio Submitted in Part Fulfilment of the Requirements for the Degree of Doctorate in Clinical Psychology

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Doctorate in Clinical Psychology

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August 2016

Abstracts

Main Research Project

People with brain injuries frequently experience anxiety and depression that may be underpinned by high levels of self-criticism. It has been suggested that attributions of responsibility for the injury may play a role in the development of self-criticism and thus contribute to psychological distress. Attributional style may be different in acquired brain injury (ABI) and traumatic brain injury (TBI) survivors due to hypothesised phenomenological differences linked to the circumstances in which they both tend to occur. Twenty-one ABI and 22 TBI survivors completed measures of 1) beliefs about brain injury (attributional style); 2) self-criticism; 3) anxiety; 4) depression; and 5) satisfaction with life. In addition, a general population sample of 23 participants completed the latter four questionnaires as a comparison group. ABI and TBI survivors did not differ in terms of scores on mood measures and measures of self-criticism/self-compassion, satisfaction with life and, crucially, attributional style in relation to their brain injury. This study found no evidence to suggest that ABI and TBI survivors psychologically react or respond differently, regardless of the circumstances, cause and type of brain injury sustained.

Keywords: brain injury**;** beliefs; attributions; self-criticism; psychological distress

Service Improvement Project

Objective: Research studies show that experiences of repeated trauma and adversity are very common in patients with severe mental health problems, who are most likely to be admitted to an inpatient unit in crisis. Unfortunately, many professionals do not routinely ask about abuse, due to concerns about distressing clients and a lack of training in how to ask and respond. Currently, guidance for complex trauma treatment and training is limited. This project sought to identify the needs of inpatient staff and developed a tailor-made training package. **Method:** Two focus groups were organised, to develop a training program which was delivered to the team. A questionnaire was administered pre-, post-training and at three-month follow-up, to assess changes in staff knowledge, confidence and worries in the assessment and treatment of trauma. **Results:** 21 staff members completed pre-training questionnaires, 13 completed post-training questionnaires and 7 staff completed questionnaires at follow-up. Self-

reported staff confidence and knowledge about working with complex trauma increased following the training, and worries about working with complex trauma decreased. The substantive and statistically significant change occurred between pre- and post-training. **Conclusions:** In order to sustain the benefits of training for longer, a number of recommendations were made to the service and included designating a "change champion" to promote staff "buy-in" to new practices. Making the provision for on-going training and supervision will form a crucial part of future service development as a trauma-informed service. The continued evaluation of tailor-made training is indicated as part of this development.

Key words: complex trauma, complex PTSD, abuse, training, service improvement

Critical Literature Review

Background: Adults with long term neurological conditions can face complex challenges in daily living, including anxiety and depression. Emerging research suggests the use of third wave approaches in working therapeutically with these difficulties. **Aims:** This review sought to assimilate and appraise the quality of published empirical studies using Compassion Focused Therapy (CFT), Acceptance and Commitment Therapy (ACT) and Mindfulness-Based Cognitive Therapy (MBCT) or Mindfulness-Based Stress Reduction (MBSR). **Method:** A narrative review was undertaken using systematic methods. Studies were appraised using The Newcastle-Ottawa Quality Assessment Scale for non-randomised research or the Cochrane Collaboration's tool for assessing risk of bias in randomised controlled trials. **Results:** 19 studies met the pre-determined criteria. 14 out of 16 studies reported a statistically significant reduction in emotional distress, anxiety and depression. Of the 13 studies that used model-specific process measures, 10 found statistically significant improvements in transdiagnostic factors. **Discussion:** The findings indicate that third wave therapies show promise in addressing transdiagnostic difficulties and enabling clients to live a better quality of life with their neurological condition. Clinical implications include consideration of intervention length and use of outcome measures. Research implications are discussed by drawing on the Stage Model of Behavioural Therapies (Rounsaville, Carroll & Onken, 2001).

Key words; systematic review, third wave; CFT, ACT, mindfulness, neurological condition

Word Count

Critical Literature Review	6916 words
Service Improvement Project	4988 words
Main Research Project	5584 words
Executive Summary	797 words
Connecting Narrative	3051 words

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Acknowledgements

First and foremost, thank you to Professor Paul Salkovskis for supervising my Main Research Project and for being so patient with me when I asked so many questions! His good humour and willingness to share his expertise kept me going during the long process of recruitment and the depths of statistical analysis. l am really grateful to Dr Leon Dysch for his help in developing both my Main Research Project and Critical Literature Review, as his support in recruitment and offers of resources to help in this process was invaluable. Thank you as well to Dr Andrew Medley for his input during the initial stages of the project development.

A huge thank you goes to Dr Emma Hale, Dr Andrew Champion, and Dr Simon Gerhand for supporting recruitment within their services. Thank you as well to Bethan McManus, Ellie Perry, Henry Cheuk-Hin, and Sophie Adams who helped contact potential participants or accompanied me during data collection; and Katherine Wakelin for her help in data inputting. I am also grateful to the staff at Headway in Bath (Sean Rivers and Grace Parker) and the Stroke Association (Philippa Gordon) who approached service users to take part.

Many thanks goes to Chris Gillmore for his help and supervision with the Service Improvement Project; Kathy Bond for her willingness and enthusiasm in supporting the implementation of training on the ward; and the staff at Sycamore Ward for their participation in the training and project.

Thank you as well to Emma Griffith and Ailsa Russell who read and provided feedback on several drafts of my Service Improvement Project and Critical Literature Review respectively. Neither of them were supervisors of the projects from the start, but I feel I really landed on my feet in having them on board with the projects. I am also extremely grateful to Catherine Butler for her input in the Service Review project and her kind feedback on my professional portfolio.

I would like to thank my placement supervisors who supported me with the case studies presented here. These include: Hanna van der Woude, Leon Dysch, Tracey Morgan, Laura Bunday and Lesley Hitchman. I thoroughly enjoyed each of these

placements. Particular thanks should also go to the clients who consented for our therapy sessions to be written up as a case study.

I owe much gratitude to my family, who have supported me throughout the last three years of training. At times, this has meant I have been unable to go to family occasions and I thank you all for being understanding of this. Special thanks goes to my partner for supplying me with hugs and chocolate during the most stressful times!

Finally, I would like to thank all the participants who gave up their time to take part. Your stories of determination and resilience were inspirational and it was by far the most rewarding part of the research.

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Critical Literature Review

Can a transdiagnostic approach be applied when working therapeutically with adults who have long term neurological conditions? A systematic review of third wave therapies

Word count: 6916

August 2016

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Intended journal for submission:

Neuropsychological Rehabilitation publishes experimental and clinical research related to rehabilitation, recovery of function, and brain plasticity. The journal is aimed at clinicians who wish to inform their practice in the light of the latest scientific research; at researchers in neurorehabilitation; and finally at researchers in cognitive neuroscience and related fields interested in the mechanisms of recovery and rehabilitation. It has published several of the studies cited in this project. No word count is stipulated (Appendix A).

1.1 INTRODUCTION

According to the National Service Framework (NSF) (Department of Health (DoH), 2005), a long term neurological condition results from disease, injury or damage to the body's nervous system (the brain, spinal cord and/or their peripheral nerve connections), which will significantly impact on the individual and their family for the rest of their life. This includes progressive conditions such as Multiple Sclerosis (MS), Parkinson's Disease and Motor Neurone Disease (MND); sudden onset conditions such as spinal cord injury, Acquired Brain Injury (ABIs) including stroke and Traumatic Brain Injury (TBIs); and intermittent conditions such as epilepsy (DoH, 2005). While stroke is covered by the NSF for older people (DoH, 2001), for the purposes of this review it is included here as a long term neurological condition.

It is estimated that ten million people are affected by long term neurological conditions in the UK (DoH, 2005). Such individuals often face complex challenges in daily living, including physical, emotional, psychological and social difficulties. Higher levels of anxiety and depression as compared to people in good physical health have been reported, with estimates of both being approximately two to three times more common in long term neurological conditions (Lloyd, 2000; Pozzilli et al., 2002; Semlyen, Summers, & Barnes, 1998; Vitaz, Mcilvoy, Raque, Spain, & Shields, 2001). Individuals are reportedly also more likely to experience significant difficulties with adjustment, self-image, identity and cognition. In their service delivery guidance, the NSF advocates psychological support to enable individuals to achieve a sense of wellbeing and adjust to altered personal, family and social circumstances. The role and provision of psychology is also reflected in other guidelines for stroke (British Psychological Society (BPS), 2008); Parkinson's disease (BPS, 2009) and chronic physical health problems (National Institute for Health and Clinical Excellence (NICE), 2009).

1.1.1 Transdiagnostic processes

While there are clear differences and variations between long term neurological conditions, such as their aetiology, epidemiology and prognosis, there are also similarities in terms of common psychological processes across diagnoses. A transdiagnostic process can occur across a range of disorders. It has been defined as "*an aspect of cognition or behaviour that may contribute to the maintenance of a*

psychological disorder" (Harvey, Watkins, Mansell, & Shafran, 2004, p. 14). Craske (2012) discusses the rationale for a transdiagnostic treatment approach to anxiety and depression, to address co-morbidity through a single manual treatment. The author highlights two existing strategies. The first is utilising a generic CBT manual that is applicable to multiple disorders. Craske (2012) describes the second approach as that which "*transcends all diagnostic boundaries*" and cites acceptance and mindfulness-based therapeutic strategies. As outlined later, we would also suggest other third-wave therapies be included in this category.

An up-to-date review by Salkovskis et al. (in press) has discussed the utility of a CBT-grounded transdiagnostic approach to working therapeutically with long term conditions generally. The paper highlights transdiagnostic factors important to consider including: mood changes, attentional processes, emotional avoidance/suppression, safety-seeking behaviours, all-or-nothing ("boom or bust") behaviour, generalised withdrawal, rumination, autonomic arousal, sleep disturbances, and the potential for deconditioning in some diagnoses. Meanwhile, Shields, Ownsworth, O'Donovan and Fleming (2016) have recently completed a transdiagnostic investigation of emotional distress after traumatic brain injury. They synthesised findings from across studies and identified a number of transdiagnostic processes, such as repetitive negative thinking including rumination and worry, avoidance behaviours, threat appraisals, negative self-concept and self-discrepancy, difficulties with emotion regulation and negative self-focussed attention. These transdiagnostic processes are by no means unique to TBI. For example, there is evidence to suggest the relevance of self-concept and self-discrepancy in stroke and acquired brain injury (Ownsworth & Gracey, 2010; Shields & Ownsworth, 2013) and neurological conditions generally (Roger, Wetzel, Hutchinson, Packer, & Versnel, 2014); and threat appraisals in progressive disorders such as Multiple Sclerosis (Dennison, Moss-Morris, & Chalder, 2009)

Meanwhile, Versnel and colleagues (2013) discuss the commonality of "illness experience" across neurological conditions, and assert that these experiences are not diagnostic-specific. The authors therefore set out to examine the transdiagnostic impact of neurological conditions on everyday life. From the similarities of the current

literature, it thus seems important to consider transdiagnostic processes across long term neurological conditions.

1.1.2 Psychological interventions

The psychological difficulties associated with long term neurological conditions have conventionally been addressed by transferring evidence-based therapies from mainstream practice, with Cognitive Behavioural Therapy (CBT) being most evidence-based (Fernie, Kollman, & Brown, 2015). CBT encourages individuals to understand the links between thoughts, behaviours and feelings, and use this understanding to make changes which will serve to reduce distress or assist in goal attainment. Changes can be at the cognitive or behavioural level. The BPS (2009) provides guidance on using CBT for depression in Parkinson's disease patients and cite evidence of its effectiveness (Dobkin, Allen, & Menza, 2007). However, they also highlight the challenges of adapting therapy for chronic illnesses, for example, negative automatic thoughts can be realistic and challenging such thoughts may be counter-therapeutic. In their guidance, the BPS (2009) suggest consideration of alternative therapies to CBT as well.

1.1.3 Third wave therapies

There have been several developments within cognitive–behavioural therapies that have promoted a shift away from altering psychological events; such as thoughts, beliefs and cognitive schemas, as tends to be the approach in CBT; towards therapies that aim to change the individual's relationship to their psychological experiences (Hayes, 2004). These "third wave therapies" are so-called because they form the third development of psychotherapy and represent an extension of CBT (Hayes, 2004). Third wave therapies include the processes of acceptance (Acceptance and Commitment Therapy; Hayes, Strosahl, & Wilson, 1999), compassion (Neff, 2003; Gilbert, 2009) and mindfulness (Mindfulness-Based Stress Reduction; Kabat-Zinn, 1990), amongst others (Dialectical Behavioural Therapy: Linehan, 1993; Metacognitive Therapy: Wells, 2000). These therapies are considered transdiagnostic approaches as they transcend diagnostic categories, as outlined by Craske (2012).

1.1.4 Acceptance-based approaches

Acceptance and Commitment Therapy (ACT) is theoretically rooted in Relational Frame Theory (Hayes, Barnes-Holmes, & Roche, 2001), a contextual behavioural approach to human language and cognition. Psychological flexibility is the applied model that underlies an ACT approach and refers to the ability to more fully contact the present moment, and the thoughts and feelings it contains, to change or persist with behaviours that serve personal values (Hayes, Villatte, Levin, & Hildebrandt, 2011). The approach is organised around six processes: defusion, acceptance, present moment focus, self-as-context, values, and committed action. The principles of ACT are taught to clients by means of experiential exercises, mindfulness methods, and a specific use of language (e.g. metaphors and paradoxes).

The application of ACT has been explored in neurological populations in several recent papers. Firstly, the role of pain acceptance in adjustment to chronic pain secondary to neurological disorders has been recently reviewed (Kratz, Hirsh, Ehde, & Jensen, 2013), with chronic pain associated with Multiple Sclerosis in particular being targeted (Tooze, Karl, Dysch, & McLaughlin, 2014; Carrigan & Dysch, 2015). Acceptance approaches have also been evaluated in the positive adjustment to changed life circumstances as a result of conditions including Multiple Sclerosis (Pakenham & Fleming, 2011), Acquired Brain Injuries (ABIs; Sylvester, 2012) and in chronic health conditions more generally. ACT has also been found to have a positive effect when used in anxiety management strategies in ABIs (Soo, Tate, & Lane-Brown, 2011).

1.1.5 Compassion-based approaches

Gilbert's (2009) model of Compassion Focused Therapy (CFT) uses theory from social, developmental, evolutionary and Buddhist psychology, and neuroscience to apply a compassion model to psychotherapy. Drawing on this model, Compassionate Mind Training (CMT) refers to specific activities designed to develop compassionate attributes and skills, principally those that influence affect regulation (Gilbert, 2009). It was developed for clients who experience high levels of shame and self-criticism, to teach them how to self-sooth (Gilbert & Proctor, 2006). Ashworth, Gracey, and Gilbert (2011) have illustrated the feasibility of Compassion Focused Therapy (CFT) in working with the shame experienced by an individual following ABI and found

significant reductions in anxiety and depression and significant increases in kindness and self-warmth.

1.1.6 Mindfulness-based approaches

Jon Kabat-Zinn defines Mindfulness as: *"paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally".* Mindfulness practices originate from ancient Buddhist meditation techniques but have been adapted for clinical settings. The best researched of these approaches is Mindfulness Based Stress Reduction (MBSR). MBSR was developed by Jon Kabat-Zinn in 1979 for people with chronic pain and terminal health conditions that were initially difficult to treat in a hospital setting. MBSR consists of breath awareness, body awareness and mindful movement, taught in a group over eight weeks. Mindfulness Based Cognitive Therapy is a derivative that places greater emphasis on cognitive techniques and was designed with recurrent depression in mind.

There is also growing evidence of the use of mindfulness-based interventions in neurological populations to; enhance wellbeing and quality of life in individuals with Multiple Sclerosis (Senders, Bourdette, Hanes, Yadav, & Shinto, 2014) and brain injury (Azulay, Smart, Mott & Cicerone, 2013; Bédard et al., 2003; 2005); reduce depressive (Grossman et al., 2010) and anxiety symptoms (Hankin, 2010) in Multiple Sclerosis; improve fatigue in stroke (Johnanssen, Bjuhr, & Rönnbäck., 2012) and ABI (Johanssen Bjuhr, & Rönnbäck, 2013); improve symptom management in Multiple Sclerosis (Mills & Allen, 2000) and to address cognitive deficits (McHugh & Wood, 2013).

1.1.7 A transdiagnostic approach

This emerging evidence base for the use of third wave approaches in long term neurological conditions is well suited to the client group, as the approaches emphasise enabling individuals to re-engage in living a more meaningful life in spite of their neurological and physical deficits (Kangas & McDonald, 2011). Unlike CBT, these approaches do not attempt to challenge the client's negative, albeit realistic, thoughts. Although differing in theoretical models and therapeutic techniques, third wave approaches share an emphasis in encouraging people to adapt to changed life circumstances and living life as well as possible (Hayes, 2004). In doing so, this

enables positive adjustment; improved self-efficacy; the development of a more helpful self-image; better coping; and enhanced wellbeing (Kangas & McDonald, 2011). While third wave therapy approaches have been gathering momentum, current research has been directed at specific approaches developed for particular patient populations or clinical conditions. The range of difficulties associated with long term neurological conditions suggests there is a need to review and develop an understanding of therapies that can target the functional underpinnings of multiple psychological problems. It may be advantageous for clinicians to develop a better understanding of working transdiagnostically with these features of long term neurological conditions using third wave therapies.

1.1.8 Why is it important to undertake a review?

The number of papers being published that evaluate the use of third wave therapies is increasing each year. A pilot literature search of third wave therapies and neurological conditions in August 2014 found 18 papers, with the earliest publication date being 2003. Twelve of the 18 papers have been published since 2011. To the author's knowledge, the systematic reviews undertaken to date have related to specific third wave therapies for specific neurological conditions, such as ACT for ABI (Kangas & McDonald, 2011); ACT for anxiety in ABI (Soo, et al., 2011); and mindfulness-based approaches for MS (Simpson et al., 2014) or stroke (Lawrence, Booth, Mercer, & Crawford, 2013). An overall review of third wave therapies for neurological conditions thus seems timely.

This paper proposes:

- To assimilate and evaluate current empirical treatment studies using third wave therapy approaches for long term neurological conditions
- In doing the above, this paper will consider the nature of the study; the quality of the evidence; the proposed transdiagnostic processes or factors targeted for intervention; the outcomes being measured; and treatment outcomes
- To consider whether there is an argument for transdiagnostic processes as mechanisms of change in the application of third wave therapies for long term neurological disorders
- To make recommendations for further research and clinical practice

1.2 METHOD

1.2.1 Criteria for consideration of studies in this review

Types of studies

Primary research including case studies, case-series, quasi-experimental studies or RCTs. No exclusions were placed on the type of study considering the emerging evidence base and the propensity for small-N designs at present.

Types of participants

Studies where participants were aged 18 years or older with a long-term neurological condition were included. For the purposes of the present review, this was taken to include progressive conditions such as Multiple Sclerosis, Parkinson's disease and Motor Neurone Disease; intermittent disorders such as epilepsy; and sudden-onset conditions, such as traumatic brain injury, acquired brain injury including stroke, and spinal cord injury.

Types of intervention

For this review, the third wave therapy approaches included were: Acceptance and Commitment Therapy; Compassionate Mind Training or Compassion Focused Therapy; and Mindfulness Based Stress Reduction or Mindfulness Based Cognitive Therapy. These approaches were considered pertinent to working therapeutically with the common psychological factors associated with long term neurological conditions.

Format of intervention

The psychological intervention was required to be delivered through face-to-face meetings between client and therapist. Psychological therapy approaches conducted on an individual or group basis were eligible for inclusion. The number of sessions was not limited, and we accepted psychological therapy interventions delivered in a single session. No requirements were made about comparator interventions.

Outcome measures

Studies with pre- and post-intervention measures were included. No stipulations were made about types of outcome due to the nature of possible outcomes, in order to maximise the scope of the work. Particular attention will be made to measures of mood and psychological distress, and model-specific outcome measures to assess the core

elements of a specific theoretical orientation. In the case of third wave therapies, this may be a measure of a transdiagnostic factor specific to the therapy being offered e.g. the process of acceptance in ACT.

1.2.2 Exclusion criteria

Non-English language publications were excluded. Studies which focused solely on older adults were also excluded, due to the co-morbidity of ageing factors and focus on dementia-like symptoms.

1.2.3 Search methods for the identification of studies

PsycINFO, PubMed and Embase were searched using the following keyword terms illustrated in Table 1.1. In PsycInfo, PsycExtra and PsycTests were not searched. Searches 1, 2 and 3 were then individually combined in turn with search 4 using the "AND" function. The search terms were checked to work in all three databases. No date restrictions were applied, as the evidence base is limited. It is anticipated that the yielded papers will have been published recently, as indicated by the pilot search. Delimiters were: research subjects (human); and language (English).

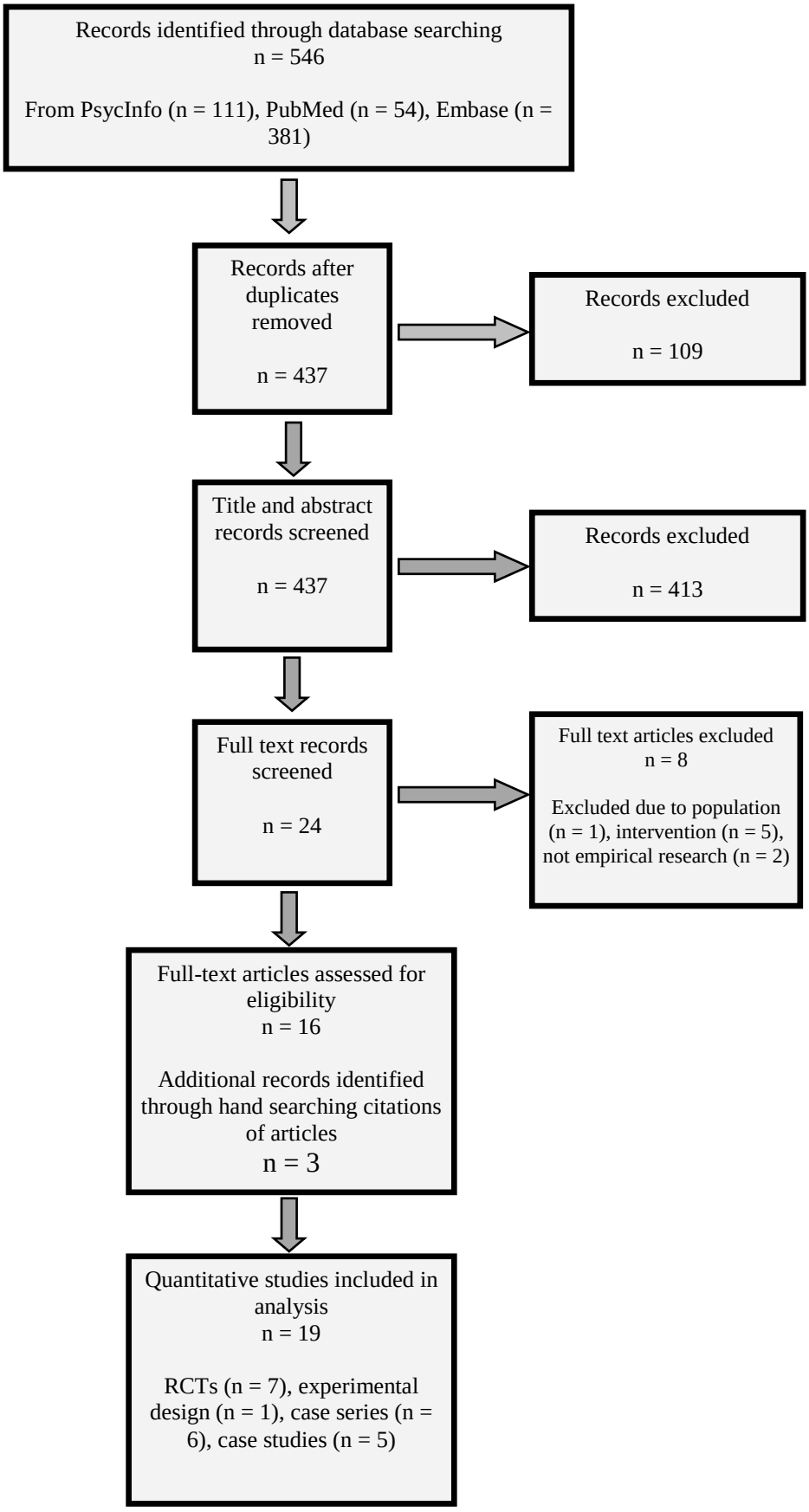
Table 1.1 Search terms

Search 1		Search 2		Search 3		Search 4
"Acceptance and Commitment Therapy"	OR	("compassion focused therapy" OR "compassion focussed therapy") OR "compassionate mind" OR "self compassion"	OR	"mindfulness"	AND	("neurologic* disorder*" OR "nervous system disease*" OR "neurologic* condition*") OR "multiple sclerosis" OR "motor neurone disease" OR "stroke" OR "brain injury" OR "Parkinson* disease" OR "epilepsy" OR "spinal cord injury"

1.2.4 Study selection and data extraction

The database searches and study selection were undertaken by one person (Figure 1.1). Papers were broad screened for eligibility by scanning the titles and abstracts, with reference to the eligibility criteria. When there was an indication of eligibility, the entire paper was retrieved for a full text review.

Figure 1.1 Systematic search results.



A record was kept of the papers excluded (Appendix B). Due to the expected low yield of papers, a decision was made not to exclude research solely on the basis of poor methodological quality but to indicate the quality using a quality appraisal tool. The references of all selected studies were hand-searched for additional published reports and citations of unpublished studies and relevant review papers were also checked. Papers were exported into Endnote Web. A data extraction form, adapted from NICE guidance (2012), was used to summarise data using the following factors: 1) study methods and setting; 2) population demographics, clinical and diagnostic details; 3) type, modality, frequency, duration of treatment and the transdiagnostic process or factors being targeted; 4) outcome measures; 5) and treatment outcomes.

1.2.5 Quality assessment

It is likely that both small scale research (non-randomised designs) and randomised control trials will be extracted. While some tools are capable of assessing quality across different study designs, such tools can be criticised as being "generic" and subject to reliability issues (Bilotta, Milner, & Boyd, 2014). In addition, using only one quality assessment tool can only be useful if those aspects of the tool that are not relevant to a given study design can be "switched-off" (Bilotta et al., 2014). Otherwise, the tool may suffer from lower inter-reviewer reliability if significant subjective interpretation is required when applying generic criteria to specific cases (Bilotta et al., 2014). With this in mind, two assessment tools have been used to appraise the quality of the data.

The Newcastle-Ottawa Quality Assessment Scale (Wells et al., 1999) (Appendix C) will be used to appraise the quality of non-randomised research such as case-control and cohort designs. This tool is endorsed by the Cochrane Collaboration (Higgins et al., 2011). It assesses three main domains - selection, comparability and exposure or outcome of research. The scale identifies high quality choices with a star; a maximum of one star can be awarded for each of the four items in "selection", each of the three items in "exposure/outcome" categories and a maximum of two stars for "comparability". The scale was adapted for use with case series, which would be eligible for a maximum of seven stars. While the NOS manual (Appendix D) does not provide overall quality descriptors based on the total number of stars, overall ratings will be determined for the studies, to allow for the collation and consideration of

outcomes. For the modified cohort scale, one to two stars will be considered low quality, three to five stars as moderate quality, and six to seven stars as high quality. For the modified case-control scale, one to three stars will be considered low quality, four to six stars as moderate quality and seven to nine stars as high quality. The decision-making process for quality assessment was documented (Appendix E).

The risk of bias in randomised studies will be assessed by using the Cochrane Collaboration's tool for assessing risk of bias (Higgins et al., 2011). This tool provides a structure to evaluate the risk of bias across a number of domains, including: how a study selects participants; measures performance; blinds participants and investigators; explores attrition, and reports findings. Each domain for each study will be allocated a ranking of "low", "unclear", or "high" risk of bias (Appendix F). While two different tools are being used, the findings from the overall quality assessment can be collated in terms of recognising high quality non-randomised or low risk of bias randomised research for the consideration of outcomes.

1.2.6 Data synthesis

As the resulting studies were clinically diverse and small in number, a meta-analysis would not provide a meaningful summary of the data (Higgins & Green, 2009). Therefore, a narrative review was undertaken using systematic methods.

1.3 RESULTS

1.3.1 Study methods and setting

A range of study designs were employed, including RCTs (n = 7), an experimental design (n = 1), case-series (n = 6) and single case-studies (n = 5). Studies were carried out across a number of countries, with just less than half (n = 9) of the reported studies undertaken in the UK. For the non-UK studies (n = 10), one was conducted in South Africa, one in India, two in Sweden, one in the US, two in Canada, one in Switzerland, one in Korea, and one in Belgium. Table 1.2 summarises the included studies.

Table 1.2 Study characteristics

Study	Method	Participants	Intervention	Outcome measures	Results
Ashworth (2014) UK *Quality score:* Selection *** Comparability n/a Outcome *	*Design*: case study. Pre-and post-intervention measures *Setting: n*euro-rehabilitation centre .	*Number*: 1 male 29 years TBI	*Format*: individual *Number of sessions* 16 *Modality*: CFT *Factors targeted* Self-criticism, self-compassion, anxiety, depression	*Primary:* FSCRS HADS SES	Reduction in Inadequate-self (34 to 0), and Hated-self (16 to 3), and increase in Reassure-self (7 to 21) subscales of FSCRS shown to be reliable change (RCI 7.4, 6.75. 6.18). Reduction in anxiety (12 to 7) and depression (19 to 7) on the HADS shown to be reliable change (RCI 3.14 and 3.74). Increase in self-efficacy on the SES (20 to 33) shown to be reliable change (RCI 5.7)
Ashworth, Clarke, Jones, Jennings and Longworth (2015) UK *Quality score*: Selection *** Comparability n/a Outcome ***	*Design:* case series. Pre- and post- measures. *Setting:* community.	*Participant number*: 12 participants *Sample*: 7 males and 5 females, all white British, aged between 21 and 55 ABI – 3x stroke, 7 x TBI, 1 x tumour, 1 x anoxic damage	*Format:* group and individual *Number of session: group* 4 full days, individual up to 18 sessions *Modality:* compassionate mind *Factors targeted: a*nxiety, depression self-criticism, self-compassion	*Primary:* HADS FSCRS	Pre-post N=12, follow-up N-9 Large effect sizes for reduction in anxiety (r=.52), depression (r=.58, *d*=1.43), self-criticism (inadequate self r=.67, *d*=1.81; hated self r= .60, *d*= 1.5) and increase in reassured self (r=.56, *d*=1.38)

Ashworth, Gracey and Gilbert (2011) UK *Quality score:* Selection *** Comparability n/a Outcome *	*Design:* case study. Pre-and post-intervention measures *Setting:* neuro-rehabilitation centre	1 female 23 years TBI	*Format:* individual *Number of sessions:* 24 *Modality:* 6 CBT for self-esteem and 18 based on CFT *Factors targeted: a*nxiety, depression, anger, self-esteem	*Primary:* BAI BDI-II RSCQ STAIE *No self-criticism/ compassion-specific measure reported*	Clinical and reliable reduction in anxiety, reliable reduction in depression, clinical reduction in anger to within normal range, clinical and reliable increase in self-esteem to within normal range. Reliable change calculated using RCI.
Bédard, Felteau, Mazmanian, Fedyk, Klein, Richardson, Parkinson and Minthorn-Biggs (2003) Canada *Quality score:* Selection *** Comparability - Exposure *	*Design:* case series, Pre-post design with drop-outs as controls. *Setting:* community	*Participant number:* 10 participants (treatment group) compared to 3 drop-outs with complete data (controls). *Sample:* 7 females and 3 males with TBI in treatment group, mean age 43. Four males with TBI in control group, mean age 39 years.	*Number of session:* 12 *Format:* group *Modality:* Mindfulness-Based Stress Reduction *Factors targeted: q*uality of life, depression, distress	*Primary* SF-36 BDI-II PSS MHLC *No mindfulness-specific measure reported*	The treatment group mean quality of life (SF-36) improved by 15.40 (SD=9.08) compared to 71.67 (SD=16.65; p=0.036) for controls (Cohen's d = 0.34). Improvements on the cognitive-affective domain of the BDI-II were reported (p=0.029, Cohen's d = 0.39)), while changes in the overall BDI-II (p=0.059, Cohen's d = 0.31)) and the Positive Symptom Distress Inventory of the SCL-90R (p=0.054, Cohen's d = 0.29) approached statistical significance.

Bédard, Felteau, Marshall, Cullen, Gibbons, Dubois, Maxwell, Mazmanian, Weaver, Rees, Gainer, Klein, and Moustgaard (2015) Canada *Risk of bias score:* unclear	*Design: r*andomized controlled trial. Treatment vs wait list control. *Setting: c*ommunity *Power* Given a potential dropout rate of up to 30% a target of 18 to 21 individuals per arm (ie, 36 to 42 per site) was estimated to provide sufficient statistical power.	*Participant number:* 57 allocated to intervention and 48 allocated to control arm. 76 completed. *Sample:* TBI. Mean age 46.77 (SD=13.37), 42 males and 34 females. Mean baseline BDI-II 26.3 (SD=9.42)	*Number of sessions:* 10 *Format:* individual *Modality:* Mindfulness-Based Cognitive Therapy *Factors targeted:* depression, mindfulness	*Primary:* BDI-II PHQ-9 SCL-90-R PHLMS TMS	The parallel group analysis revealed a greater reduction in BDI-II scores for the intervention group (6.63, *n* = 38,) than the control group (2.13, *n* = 38, *P* = .029). A medium effect size was observed (Cohen *d* = 0.56). The improvement in BDI-II Scores maintained at 3-month follow-up. A change in mindfulness was observed in the hypothesised direction but did not meet statistical significance. 28% attrition
Dewhurst, Novakova and Reuver (2015) UK *Quality score:* Selection *** Comparability n/a Outcome **	*Design:* case series, pre-, post- and six-month follow-up measures. *Setting:* hospital outpatient setting	*Participant number:* 60 participants. *Sample:* epilepsy patients 46 females and 14 males, mean age 40 years (range 19-75),	*Number of sessions:* 6-20 (fortnightly) *Format:* individual *Modality:* ACT *Factors targeted:* quality of life, social adjustment, self-esteem, depression, and anxiety	*Primary* SF-12v2 GAD-7 NDDI-E RSES WSAS *No ACT-specific measure reported*	Pre-post N=60, follow-up N=41 Significant medium to large effects on depression (*r*-.42), anxiety (*r*-.47), quality of life (*r*-.46), work and social adjustment (*r*-.50), and self-esteem (*r*-.35). Sustained to six-months follow-up.
Gillanders and Gillanders (2014) UK	*Design:* case study. Pre- and post-intervention measures.	1 female Multiple Sclerosis 62 years	*Number of sessions:* 10 *Format:* 4 joint with partner, 6 individual	*Primary* AAQ-II HADS	Depression and anxiety scores reduced to non-clinical levels. Increased acceptance and ability to pursue valued directions in life. Pre-post treatment score changes exceeded the RCI value for reliable change.

Quality score: Selection *** Comparability n/a Outcome *	*Setting:* neuro-rehabilitation outpatient.		*Modality:* ACT. *Factors targeted* Acceptance, anxiety, depression		
Graham, Gillanders, Stuart and Gouick (2015) UK *Quality score:* Selection *** Comparability n/a Outcome *	*Design:* case study, pre-, post-intervention measures *Setting:* community	1 male Stroke 40 years	*Number of sessions: 9* *Format:* individual *Modality:* ACT *Factors targeted:* stress, psychological inflexibility	*Primary* DASS-21 AAQ-II	Increase in psychological flexibility (reduction in inflexibility from 25 to 13) Reduction in stress (36 to 20), anxiety (24 to 8) and depression (18 to 12)
Grossman, Kappos, Gensicke, D'Souza, Mohr, Penner and Steiner (2010) **S**witzerland *Risk of bias score:* low	*Design:* randomized controlled trial. Treatment vs usual medical care. Pre-, post-intervention and six-months follow-up. *Setting:* hospital	*Participant number:* 150. Intervention (n = 76) or usual care (n = 74). *Sample:* Multiple Sclerosis (MS) Mean age 47.29 (SD=10.35), 119 (79%) women and 31 (21%) men	*Number of sessions: 8* *Format:* group *Modality:* Mindfulness-Based Stress Reduction *Factors targeted:* primary outcomes - quality of life, depression, and fatigue. Secondary - anxiety, personal goal attainment.	*Primary* PQOLC HAQUAMS CES-D MFIS *Secondary* STAI *No mindfulness-specific measure reported*	Intention-to-treat analysis. MBSR compared with UC, improved nonphysical dimensions of primary outcomes at post-intervention and follow-up ($p < 0.002$); effect sizes, 0.4–0.9 posttreatment and 0.3–0.5 at follow-up. When analyses were repeated among subgroups with clinically relevant levels of pre-intervention depression, fatigue, or anxiety, post-intervention and follow-up effects remained significant and effect sizes were larger than for the total sample. *Attrition* 5% attrition from treatment group and 9% attrition from usual care group accounted for.
Johansson, Bjuhr & Rönnbäck (2012) Sweden *Risk of bias score:* high	*Design:* randomised controlled trial. Treatment vs. wait list controls. *Setting:* not stated	*Participant number:* 29. 15 randomised into intervention (12 completed) and 14 served as controls (no active treatment)	*Number of sessions:* 8 x 2.5 hour sessions, one-day silent retreat, home practise *Format:* group *Modality:* Mindfulness-Based Stress Reduction.	*Primary* MFS *Secondary* Neuropsychological tests to measure information processing speed,	Statistically significant reduction of mental fatigue for MBSR group (paired T-test, p=0.004), while waitlist control remained unchanged (paired T-test, p=0.89). Reduction in depression for MBSR group (p=0.006) and anxiety (p=0.004). No change for the control (depression, p=0.84; anxiety, p=0.79).

		Sample: 18 with stroke and 11 with TBI. MBCT group mean age 53.7 (SD 6.11), 5 females, 7 males. Waitlist control mean age 57.1 (SD 7.26), 10 females, 4 males.	*Factors targeted* Mindfulness	attention and working memory. *Tertiary* CPRS for anxiety and depression *No mindfulness-specific measure reported*	Improvements in processing speed according to the neuropsychological tests; Digit Symbol-Coding and Trail Making Test.
Joo, Lee, Chung and Shin (2010) Korea *Quality score:* Selection *** Comparability n/a Outcome *	*Design:* case series with a pre-, post- design. *Setting:* hospital	*Participant number:* 11 *Sample:* subarachnoid haemorrhage (ABI) 5 males and 6 females, age range 30 to 70 years.	*Number of sessions:* 8 *Format:* weekly group for 2.5 hours *Modality:* Mindfulness Based Stress Reduction (. *Factors targeted* Mindfulness, anxiety, depression	*Primary* BDI-II STAI Heart Rate Variability (HRV) *No mindfulness-specific measure reported*	BDI decreased from 18.5 ± 10.9 to 9.5 ± 7.1 (p = 0.013). The state anxiety decreased from 51.3 ± 13.9 to 42.3 ± 15.2; the trait anxiety was reduced from 50.9 ± 12.3 to 41.3 ±12.8, and a borderline significant difference was shown (p = 0.091, p = 0.056). Improvements in homeostatic control.
Kangas, McDonald, Williams and Smee (2015) UK *Quality score:* Selection ** Comparability n/a Outcome **	*Design:* case series, pre-, post-intervention and three-month follow-up measures *Setting:* hospital oncology department	*Participant number:* 4 *Sample:* brain tumour. 3 females, 1 male, mean age 42 years (range 39-53)	*Number of sessions:* 8 *Format:* 6 x 90 min weekly 1:1 sessions, 2 x 90-min 'booster' sessions on a fortnightly basis. *Modality:* ACT *Factors targeted:* six core ACT processes, anxiety, depression	*Primary* AAQ-9 BDI-II FACT STAI	Increase in psychological flexibility (reduction in inflexibility from 40.0 to 37.6) Reduction in anxiety (48.25 to 42.6) and depression (27.75 to 13.0) symptoms. Improvement in quality of life (45.3 to 67.6).
Lundgren, Dahl, Melin and Kies (2006)	*Design:* RCT. Treatment vs attention control.	*Participant number:* 27.	*Number of sessions:* 4	*Primary* WHOQOL	Significant reduction in seizure frequency/duration and increase in quality of

South Africa *Risk of bias score:* high	Pre-, post- six-month and 12-month follow-up. Randomly assigned to ACT (N=14) or Supportive Treatment (N=13). *Setting:* inpatient hospital and day centre	*Sample:* Drug refractory EEG verified epilepsy 14 males and 13 females between 21 and 55 years.	*Format:* two group sessions (6 hours' total) and two individual sessions (3 hours' total *Modality:* ACT *Factors targeted:* six core ACT processes	SWLS seizure index (frequency x duration) *Secondary* AAEpQ Values Bulls Eye PWI	life associated with ACT group as compared to ST Further analysis revealed ACT had a very large and statistically significant impact on all quality of life and process (acceptance, values) measures. Cohen's d > 1.72. 42% of the variance in each was explained by treatment differences.
Lundgren, Dahl, Yardi and Melin (2008) India *Risk of bias score:* unclear	*Design:* randomized controlled trial group design with repeated measures Treatment (N=10) vs yoga (N=6). Pre- post- six- and 12-month follow-up. *Setting:* outpatient clinic	*Participant number:* 18 *Sample:* EEG-verified diagnosis of epilepsy 12 males and 6 females between the ages of 18 and 55 years (mean 23.85 tears).	*Number of sessions:* 4 *Format:* 2 individual and 2 group sessions. Booster sessions at 6 and 12 months *Modality:* ACT *Factors targeted* Psychological flexibility	*Primary* WHOQOL-BREF SWLS seizure index (frequency x duration) *No ACT-specific measure reported*	Significant reduction in seizure index in both groups over time. Change scores indicated the ACT group changed significantly more as compared with the yoga group. ACT group increased quality of life significantly according to the WHOQOL-BREF ($F(3,27) = 5.50$, Cohen's $d = 0.81$); and change on the SWLS in the hypothesized direction ($F(3,27) = 1.75$, Cohen's $d = 0.55$)
Nordin and Rorsman (2012) Sweden *Risk of bias score:* unclear	*Design:* randomized controlled trial. Pre, post-treatment and 3-month follow-up. *Setting:* outpatients	*Participant number:* 21 *Sample:* Multiple Sclerosis Mean age in ACT group 43 years, 8 females and 3 males. Relaxation training	*Number of sessions:* 5 *Format:* group sessions over 15 weeks *Modality:* ACT *Factors targeted* Acceptance, anxiety, depression	*Primary* HADS BDI-II AAQ-II	RT group showed a larger decrease in depressive symptoms than ACT group from pre- to post-treatment (HADS-D) ($p < 0.05$). and in anxiety from pre-treatment to follow-up ($p < 0.05$). Within-subject analyses in the ACT group yielded a significant decline in BDI scores from pre-treatment to post-treatment ($Z = 2.2$, $p < 0.05$), and an improvement in AAQ-II

	Randomly assigned to treatment (N=11) or relaxation training (N=10). 20 completed.	mean age 48.5 years, 8 females and 2 males.			scores from pre- to post-treatment ($Z = 2.2$, $p < 0.05$) and from pre-treatment to follow-up ($Z = 2.1$, $p < 0.05$).
O'Neill and McMillan (2012) UK *Quality score:* Selection **** Comparability ** Exposure *	*Design:* experimental, repeated measures design. Independent variable – compassionate imagery vs. relaxation control. *Setting:* community	*Participant number:* 24 *Sample:* TBI Compassionate imagery group – 10 females, 2 males with a mean age of 45. Relaxation control – 11 females, one male with a mean age of 39. All White British.	*Number of sessions:* 1 *Format:* 30-minute induction or relaxation *Modality:* Compassionate Mind image. *Factors targeted* Self-compassion, empathy, fear of compassion	*Primary* SCS EQ Self-report measure of relaxation using Likert scales	No significant effects of intervention on SCS (Wilcoxon T = 78.00, p = .07, r - –.26;), EQ (t (23) = 0.78 p = .45) or relaxation scores (T = 71.00, p = .20).
Pickut et al. (2015) Belgium *Risk of bias score:* unclear	*Design:* RCT. Measures at baseline and 8 weeks after intervention. *Setting:* not reported Randomized 1:1 into intervention (MBI) or usual care (UC) arms. 15 participants in each,	*Participant number:* 30. *Sample:* Parkinson's Disease 14 males and 13 females, mean age 61.8 (SD=9.1).	*Number of sessions:* 8 *Format:* group. Each session 2.5 h weekly *Modality* Mindfulness based intervention (MBI) closely following MBSR. *Factors targeted* Mindfulness	*Primary:* UPDRS FFMQ PDQ-39 BDI-I	Significant changes after the MBI were found including a 5.5-point (20%) decrease on the UPDRS motor score, an increase of 0.79 points (10.5%) on PDQ-39 pain item, and a 3.15 point (13%) increase in the Five Facet Mindfulness Questionnaire observe facet ($F = 11.07$, $p < .01$). Changes on the BDI did not reach significance. 27 completed (MBI=14, UC-13).

Sheppard, Forsyth, Hickling and Bianchi (2010) US *Quality score:* Selection ** Comparability n/a Outcome ***	*Design:* case series, pre- and post- measures *Setting:* community	*Participant number:* 15 *Sample:* Multiple Sclerosis 12 females and 3 males, mean age 53.13 (SD age ± 7.68 years)	*Number of sessions:* 1 *Format:*5-hour workshop *Modality:* ACT *Factors targeted* Act relevant processes e.g., Mindfulness, thought suppression	*Primary:* BDI-II MFIS PES WBSI MAAS QoLI	Depression and effect of pain scores decreased (F1,14 = 5.70, P < .05, np2 = .29; large effect size), (F1,14 = 7.54, P < .05, np2 = .37; large effect size). MCS of SF-36 showed a trend toward improvement (F1,14 = 4.03, P = .07, np2 = .29; large effect size). The impact of fatigue did not improve significantly (P > .05, np2 = .15; large effect size), nor did PCS of the SF-36 (P > .05). Reductions in tendency to suppress thoughts (F1,14 = 7.53, P < .05, np2 = .35; large effect size). Mindfulness scores did not significantly improve (P > .05, np2 = .05; small effect size). 4 participants did not complete post-measures (27% attrition rate)
Shields and Ownsworth (2013) UK *Quality score:* Selection *** Comparability n/a Outcome **	*Design:* case study. Pre-, post-intervention and follow-up measures *Setting:* community	1 female stroke (ABI) 48 years	*Number of sessions:* 15 *Format:* individual *Modality:* CBT/CFT approach *Factors targeted* Self-acceptance, self-compassion, distress	*Primary:* OQ45.2 DASS-21 SCS-SF	Reduction in emotional distress on the OQ45.2 (94 to 39) and DASS-21 (14 to 8)) shown to be clinically significant by Reliable Change Indices (RCI) Increase in compassion (SCS-SF) from low (2-08) to moderate (3.25) that did not reach the cut-off for reliable change

AAEpQ = Acceptance and Action Epilepsy Questionnaire, AAQ-II = Acceptance and Action Questionnaire-II, BAI = Beck Anxiety Inventory, BDI-II = Beck Depression Inventory-II, CES = Center for Epidemiologic Studies Depression Scale, CPRS = Comprehensive Psychopathological Rating Scale, DASS-21= Depression Anxiety Stress Scales, EQ = The Empathy Quotient, FACT = Functional Assessment of Cancer Therapy scale—General and Brain Tumour, FFMQ = Five Facet Mindfulness Questionnaire, FSCRS = Forms of Self-Criticising/Reassuring Scale, GAD-7 = Generalized Anxiety Disorder-7 scale, HADS = Hospital Anxiety and Depression Scale, HAQUAMS = Hamburg Quality of Life Questionnaire in Multiple Sclerosis, MAAS = Mindful Attention Awareness Scale, MFIS = Modified Fatigue Impact Scale, MFS = Self-Assessment of Mental Fatigue Scale, MHLC = Multidimensional Health Locus of Control Scale, NDDLE = Neurological Disorders Depression Inventory for Epilepsy, OQ45.2 = Outcome Questionnaire, PDQ-39 = Parkinson's Disorder Questionnaire -30, PES = Pain Effects Scale, PHLMS = Philadelphia Mindfulness Scale, PHQ-9 = Patient Health Questionnaire-9 scale, PQOLC = Profile of Health-Related Quality of Life in Chronic Disorders, PSS = Perceived Stress Scale, PWI = Personal Well Being Index, QOLI - Quality of Life Inventory, RSCQ = Robson Self Concept Questionnaire , RSES = Rosenberg Self-Esteem Scale, SCL-90-R = Symptom Checklist-90 Revised, SCS = Self Compassion Scale, SCS-SF = Self-Compassion Scale-Short Form, SES = Self Efficacy Scale, SF-12v2 = Short Form - 12 version 2 Health Survey, SF-36 = Short Form Health Survey-36 , STAEI = State Trait Anger Expression Inventory, STAI - Spielberger Trait Anxiety Inventory, SWLS = Subjective Well Being Life Scale, TMS = Toronto Mindfulness Scale, UPDRS = Unified Parkinson's Disease Rating Scale, WBSI = White Bear Suppression Inventory, WHOQOL = World Health Organization Quality of Life measure, WSAS = Work and Social Adjustment Scale.

1.3.2 Participant demographics

Of the 486 participants included in the review, 167 (34.4%) were male and 319 (65.6%) were female. The age of participants across studies ranged from 18 to 75 years. Mean ages of participants were similar across all studies. There was limited data overall regarding ethnicity, education and socio-economic status.

1.3.3 Participant clinical diagnoses

Studies included a range of different clinical diagnoses. In five studies, participants were diagnosed with TBI. In four studies, participants were reported to have sustained ABIs, such as stroke, cerebral aneurysm, and brain tumours, while another two studies reported a mixed sample of ABI. In three studies, participants had a diagnosis of drug-refractory epilepsy. Five studies recruited participants with progressive disorders, of which four studies involving Multiple Sclerosis and one with Parkinson's Disease.

1.3.4 Intervention characteristics

Interventions were offered in a range of formats, including individual sessions, group-based approaches, sessions joint with a family member or a mixture of individual and group sessions. The number of sessions attended by participants varied hugely across the studies, from one session or workshop (O'Neill & McMillan, 2012; Sheppard et al., 2010) to 24 sessions (Ashworth et al., 2011). Sessions were primarily offered on a weekly basis. Duration ranged from 30 minutes (O'Neill & McMillan, 2012) to a five-hour workshop (Sheppard et al., 2010). Individual sessions tended to last an hour while group-based sessions were typically reported as longer (average 2.5 hours).

Therapy modality

Five of the papers reported compassion-based approaches drawing on Compassion Focused Therapy (CFT) or Compassionate Mind; eight papers reported using Acceptance and Commitment Therapy (ACT); and six papers reported mindfulness-based approaches, such as following a Mindfulness-Bases Stress Reduction (MBSR) protocol or Mindfulness-Based Cognitive Therapy (MBCT).

Attrition

Attrition rates were considered for the seven RCTs, Bédard et al. (2015) reported 29 participants who did not complete the study (28%), due to reasons such as moving,

other commitments, scheduling issues, or not enjoying the program. Four of the 76 patients dropped out of the MBSR course in the study by Grossman et al. (2010) and did not complete post-intervention inventories (5%). Two reported a loss of interest, one disease-related problems, and one no reason. Three participants from the first treatment group (20%) and four participants from the second treatment group (29%) dropped out in the Johansson et al (2012) study but reasons are cited for only 4 out of 7 of these participants. Lundgren et al (2008) report no attrition from their study. Equally, in Nordin and Rorsman's (2012) study only one participant left the study overall (5%). Meanwhile, Pickut et al. (2015) describe that one participant withdrew from the treatment group (7%) and two from the usual care group (13%).

1.3.5 Quality assessment

No studies were excluded based on quality assessment. The quality of the included studies was appraised independently for non-randomised and randomised research and they are discussed separately below.

Quality assessment for non-randomised designs

The potential for bias is known to be inherent to case studies, case series, and quasi-experimental study studies due to sampling, selection and measurement biases. The case studies, case series and experimental study ranged in quality from 4 to 6 stars out of a maximum of 7 stars, using the modified NOS cohort scale (selection and outcome/exposure categories only); and 4 to 7 stars out of a maximum 9 for the modified case-control NOS scale (selection, comparability and outcome/exposure categories) (Appendix E). Applying the quality descriptors to the overall star ratings, no studies were rated as low quality, 10 studies were rated as moderate quality, and two studies were rated as high quality (Ashworth et al., 2015; O'Neill & McMillan, 2012).

Quality assessment for randomised designs

The RCTs (n = 7) employed methods to reduce the potential for bias including random sequence allocation to intervention or control conditions, intention-to-treat analysis methods and blinding of assessors in analysing outcome measures (Appendix F). One RCT was assessed as low risk of bias (Grossman et al., 2010), four as an unclear risk

(Bédard et al., 2015; Johansson et al., 2012; Lundgren et al., 2008; Nordin & Rorsman, 2012) and two as at high risk of bias (Lundgren et al., 2006; Pickut et al., 2015).

1.3.6 Outcomes

All studies utilised self-report questionnaires to assess change and treatment outcomes. Table 2 shows the range of outcome measures administered. For primary outcomes, five studies reported mood measures; two reported model-specific process measures; and 10 studies reported both mood and model-specific process measures. One study reported on neurological symptoms as a primary outcome but did not report on mood measures or model-specific process measures; whilst another study reported on neurological symptoms as primary and secondary outcomes and mood measures as a tertiary outcome. The outcomes concerning mental health symptoms and the model-specific process measures associated with third wave therapies will be discussed.

Outcome measurement

Questionnaires measured mental health symptoms, such as: low mood (BDI, BDI-II, PHQ-9, CES-D); anxiety (BAI-II, STAI); anxiety and depression (HADS, DASS-21, CPRS); generalized anxiety (GAD-7); stress (PSS); broad mental health screening (SCL-90-R); and mental health outcome assessment (OQ-45). The questionnaires typically used for third wave therapy process outcomes included measures of: shame, self-criticism and the ability to self-reassure (FSCRS); self-compassion (SCS, SCS-SF); psychological flexibility (AAQ-II, AAEpQ); attainment of values (Values Bulls Eye); thought suppression (WBSI); and mindfulness (MAAS, TMS, PHLMS, FFMQ).

Treatment outcomes – effectiveness of third wave therapies

The effectiveness of third wave therapies was considered from treatment outcomes for mental health symptoms such as anxiety, depression and emotional distress; and model specific process outcomes, such as changes in acceptance, compassion and mindfulness.

Outcomes for non-randomised designs Non-randomised studies tended to report statistical significance in terms of changes to group means from pre- to post-treatment; others considered clinically significant change and reliable change using a Reliable Change Index (RCI); and some offered effect sizes. A decrease in mental

health symptoms such as anxiety, depression and emotional distress, were reported in 11 out of 12 of the non-randomised studies as statistically significant, while O'Neill and McMillan (2012) did not report intervention effects on distress.

For the model-specific outcomes, there were reported statistically significant improvements in self-compassion and self-criticism (Ashworth, 2014; Ashworth et al., 2015); mindful awareness (Sheppard et al., 2010); thought suppression (Sheppard et al., 2010); and acceptance and psychological flexibility (Gillanders & Gillanders, 2014; Graham et al., 2015; Kangas et al., 2015). While Shields and Ownsworth (2013) found an increase in self-compassion from low to moderate, this did not meet threshold for reliable change. Likewise, O'Neill and McMillan (2012) reported no significant treatment effect on self-compassion compared to relaxation controls. Both Shields and Ownsworth (2013) and O'Neill and McMillan (2012) hypothesise this is likely due to the shortness of the intervention (10 sessions and a 30-minute compassionate image induction respectively). Three studies did not use model-specific process measures (Ashworth et al., 2011; Dewhurst et al., 2015; Joo et al., 2010).

Outcomes for randomised designs The randomised research tended to report statistical significance in terms of changes to group means from pre- to post-treatment, clinically significant change and effect sizes. A decrease in mental health symptoms such as anxiety, depression and emotional distress, were reported in three of the RCTs (Bédard et al., 2015; Grossman et al., 2010; Johansson et al., 2012). Changes on the BDI did not reach significance for Pickut et al. (2015). While Nordin and Rorsman (2012) observed a reduction in anxiety and depressive symptoms, this reduction was not as great for the group that received the ACT intervention compared to the Relaxation Training control group. Lundgren et al. (2006; 2008) did not report on anxiety and depression symptoms within their two studies.

For the model-specific outcomes, there were reported statistically significant improvements in three of the RCTs, relating to acceptance and psychological flexibility (Lundgren et al., 2006; Nordin & Rorsman, 2012); and mindful awareness (Pickut et al., 2015). In their study, Bédard et al. (2015) found an increase in mindful awareness compared to controls but this did not meet statistical significance. They discuss the difficulties in capturing facets of mindfulness and the potential limitations

of the scales measuring stable traits rather than states. Three out of 7 of the RCTs did not use model-specific process measures (Grossman et al., 2010; Johansson et al., 2012; Lundgren et al., 2008), with two of these studies relating to mindfulness-based interventions.

High quality/low risk of bias treatment outcomes summary For the non-randomised research, two studies were considered high quality according to the adapted NOS for quality assessment (Ashworth et al., 2015; O'Neill & McMillan, 2012). Ashworth and colleagues (2015) reported on outcomes in terms of mood (anxiety and depression), and transdiagnostic factors (self-criticism and self-compassion), with large effect sizes described. Interestingly, O'Neill and McMillan (2012) did not report on psychological distress in their study and furthermore did not find a significant treatment effect on self-compassion compared to relaxation controls due to the shortness of their intervention. For the randomised research, one RCT was considered at low risk of bias according to the described design, such as methods of randomisation, employing an intention to treat analysis, blinding of personnel, and accounting for attrition (Grossman et al., 2010). Grossman and colleagues (2010) reported large effect sizes for the primary outcome of depression and secondary outcome of anxiety, but did not include model-specific process measures for the MBSR intervention.

1.4 DISCUSSION

1.4.1 Overview

This review aimed to summarise published empirical data regarding the applicability of using third wave therapy approaches for working transdiagnostically with the emotional difficulties associated with long-term neurological conditions. Sixteen out of a potential 24 studies met the pre-determined inclusion criteria and an additional three studies were found through hand-searching references of included studies. The quality of the included 19 studies was appraised using either The Newcastle-Ottawa Quality Assessment Scale for non-randomised research, or the Cochrane Collaboration's tool for assessing risk of bias. The quality of the studies was varied for both the small scale research (case studies and case series) and the RCTs, with three studies considered as high quality or low risk of bias. Nevertheless, the majority of study treatment outcomes indicate that participants can benefit clinically from third

wave therapies, such as Compassion Focussed Therapy, Acceptance and Commitment Therapy, Mindfulness-Based Stress Reduction and Mindfulness-Based Cognitive Therapy. Fourteen out of 16 studies demonstrated a statistically significant reduction in emotional distress, anxiety and depression post-therapy. Of the 13 studies that used model-specific process measures, 10 found statistically significant improvements in transdiagnostic processes such as self-compassion, self-criticism, acceptance, psychological flexibility, thought defusion, values attainment and mindful awareness. This can be taken as preliminary evidence for the applicability of third wave therapies in addressing transdiagnostic processes common to many long-term neurological conditions. In the other three studies, the results were in the hypothesised direction but did not meet threshold for statistical and reliable change. The authors of these three studies offer hypotheses about the effect of the duration of the intervention (O'Neill & McMillan, 2012; Shields & Ownsworth, 2013) and the limitations of the selected measures (Bédard et al., 2015) as impacting on treatment outcomes. Focusing on the high quality/low risk of bias studies in particular, clinically significant improvements were found for anxiety and depression (Ashworth et al., 2015; Grossman et al., 2010) and transdiagnostic factors such as self-criticism/self-compassion (Ashworth et al., 2015), lending some further weight to the above conclusions.

Overall, the findings of this review are consistent with the findings of recent systematic reviews and meta-analyses of third wave therapies more broadly, which comment on the methodological problems and risk of bias of the research (Hunot et al., 2013, Kahl, Winter, & Schweiger, 2012; Ost, 2008). Ost (2008) highlights the "young but promising" nature of the third wave therapies, but suggests that the low publication rate per year is impacting on its progression. At the time of writing, Ost (2008) estimated the mean number of ACT RCTs published per year since the ACT manual was written in 1999 as 1.6; a number that is considered low compared to more mature therapies such as CBT. In the review, ACT was considered for a range of presentations including anxiety, depression, pain, and health conditions such as epilepsy and diabetes. While empirical studies for other presentations have been published since 2008, the RCT yield per year is unlikely to have increased.

The variable nature and quality of the third wave therapies may be better understood in terms of a Stage Model of Behavioural Therapies research (Rounsaville, Carroll, &

Onken, 2001). This model articulates the progressive stages of the development and evaluation of behavioural treatments, from initial clinical innovation through efficacy research to effectiveness research (Rounsaville et al., 2001). According to this model, the reviewed research involving CFT is just within stage Ib of the model, with small-scale and non-randomised research. Taking the high quality study by Ashworth and colleagues (2015), the feasibility of using CFT in brain injury has been demonstrated, with clinically significant patient improvements in mood and self-criticism over time and the consideration of effect sizes. What is currently lacking and needed for progression within the CFT literature is the use of a control group, larger sample sizes and randomisation to group.

The reviewed ACT studies included more than two RCTs (Lundgren et al., 2006; 2008; Nordin & Rorsman, 2012), which meets criteria for stage III of the model. Likewise, the research utilising MBCT and MBSR has met the criteria for stage III (Bédard et al., 2015; Grossman et al., 2010; Johansson et al., 2012; Pickut et al., 2015). However, in both the ACT and MBCT/MBSR RCTs there were a majority of studies that had an unclear risk of bias. Usually, this was due to unclear random sequence generation, unclear blinding of study personnel to outcome data, incomplete outcome data and lacking consideration of intention to treat analysis. The low risk of bias study by Grossman et al., (2010) addressees the above points and is a good example of a well-designed RCT comparing MBSR to usual care.

The authors of this review also noted a discrepancy in the terms used within included studies and the wider literature. The processes targeted in the reviewed study interventions included self-compassion, self-criticism, acceptance, psychological flexibility, thought defusion, values attainment and mindful awareness. While these psychological constructs are clearly transdiagnostic in the sense that they relevant across multiple diagnoses, they differ to those processes highlighted in the literature as transdiagnostic processes common across long term neurological conditions, such as rumination and worry, avoidance behaviours, threat appraisals, negative self-concept/self-discrepancy, and difficulties with emotion regulation. While developing mindful awareness, for example, will positively impact on worry and rumination, we contend that the former relates to the approach and is a model-specific process while the latter is the transdiagnostic process or factor that a clinician or researcher is hoping

to change. Herein lies the confusion within the reviewed literature, as the term transdiagnostic processes is frequently not defined and is used interchangeably with other terms relating to transdiagnostic approaches.

1.4.2 Limitations

Several limitations to this review should be noted, Firstly, while the published literature was searched systematically in several databases, the potential for publication bias was not accounted for, such as retrospectively searching trial registers for unpublished studies. Therefore, negative or nonconfirmatory results from unpublished studies were not considered and this may unintentionally contribute to the "file drawer effect". In addition, the grey literature was not searched. As Hunot et al. (2012) point out, there is a potential for some of the studies conducted most recently to have been excluded by these decisions. Secondly, non-English language papers were excluded due to resource constraints. Despite this, papers from varied geographical locations were included, which goes someway to bolster the generalisability of the review conclusions. Thirdly, treatment fidelity was not assessed in this review. In future versions of the review, it would be useful to extract information relating to adherence to the approaches such as independent ratings of randomly selected audio-visual recordings.

In addition, there is some criticism in the literature towards the use of the Newcastle-Ottawa Scale and this provides a further limitation. Stang (2010) comments that the growing use of the NOS as an apparently established "easy to use" quality score may be problematic, due to some items having uncertain validity. For example, the NOS gives the same score to studies that did independent or blind outcomes as those that utilised record linkage (outcome identification through database records). Stang (2010) highlights that this can lead to arbitrary results and far-reaching conclusions being drawn. In addition, low inter-rater reliability of the NOS between reviewers and authors has been suggested (Lo, Mertz, & Loeb, 2014). One possible explanation for the discrepancy is that reviewers may not have all the information needed from the published article (Lo et al., 2014). In this review, we did not contact study authors for additional information and therefore the quality assessment of studies that was completed using the NOS will be subject to the above limitations.

1.4.3 Clinical implications

This review has highlighted the promising nature of working transdiagnostically with the difficulties associated with long term neurological conditions. A transdiagnostic approach focuses on what disorders have in common. Research suggests that there are processes that commonly occur across multiple conditions, such as difficulties with; acceptance, emotional adjustment and coping; self-criticism; experiential avoidance and avoidance behaviours; rumination and thought fusion; distress, anxiety and depressive symptoms. By using a transdiagnostic approach, clinicians can target the functional underpinnings of multiple psychological problems rather than being driven by a disorder-specific approach. For this reason, the third wave therapies are well suited to this client group, as the approaches emphasise enabling individuals to re-engage in living a more meaningful life in spite of their neurological and physical deficits (Kangas & McDonald, 2011). The approaches do not attempt to challenge realistic negative thoughts but instead emphasise adapting to changed life circumstances and living life as well as possible (Hayes, 2004). In doing so, this enables improvements in adjustment and coping; mood and wellbeing; and quality of life.

The length of an intervention can be a key consideration for clinicians. While approaches such as MBCT/MBSR are highly manualised and specify the number of sessions, other approaches such as CFT and ACT do not. This review has highlighted two CFT studies where the authors felt the interventions were too short in duration. A good example of session number and content can be accessed in the paper by Ashworth (2014), who gives a transparent and detailed account of the CFT intervention undertaken for the case study.

It is important that clinicians are mindful of the questionnaires or scales they use to measure treatment outcomes and processes of change. Not all the study questionnaires in this review have been validated for neurological populations and clinicians may need to carefully consider the validity of questionnaires they use in measuring treatment outcomes. For example, self-report questionnaires about mood typically include items about being “slowed down” as well as changes in eating and sleeping. Such items are confounded by also measuring changes in functioning. The process measures for transdiagnostic factors are less likely to have the same construct validity

issues, due to the different emphasis of items. For example, the Forms of Self-Criticism/Self-Attacking and Self-Reassuring Scale (Gilbert, Clark, Hempel, Miles, & Irons, 2004), or the Acceptance and Action Questionnaire-II (Bond et al., 2011). However, the language of the questionnaires may be too complicated for some clients who experience cognitive difficulties, and again clinicians should be mindful of this in their choice of questionnaires.

1.4.4 Research implications

There are several implications for research. The reviewed studies indicate that there is an emerging evidence base for the applicability and effectiveness of third wave therapies in working therapeutically with long term neurological conditions. However, there is a need for larger sample sizes and the inclusion of a control group with randomised allocation in the CFT literature, in order to consolidate a move from stage Ib to stage II of the Stage Model of Behavioural Therapies research (Rounsaville et al., 2001). Equally, more methodologically robust and rigorous trials are needed within the ACT and MBCT/MBSR literature, to address some of the known risks of bias, and to aid generalisability, implementation and cost-effectiveness issues of stage III. Secondly, it is important that there is increased research into the reliability and validity of model-specific outcome measures with different neurological populations, through determining normative thresholds for commonly used measures. While fidelity to treatment was not assessed in this review, it was noted by the authors that not all studies discussed therapist adherence to the model for treatment. Future studies should focus on therapist adherence and competence measures. The random checking of audio/visual recordings against a standardised checklist by an independent clinician is a requirement for good psychological studies. This would provide some certainty that any treatment effect can be attributed to specific components of the model and would reduce the risk of bias.

Future studies would also benefit from defining and operationalising relevant terms and constructs to give clarity to the reader. In addition, it would be advantageous for studies to draw together transdiagnostic processes and transdiagnostic approaches, so that the interventions and model-specific processes being evaluated clearly map onto the relevant transdiagnostic processes associated with long term neurological conditions.

1.4.5 Conclusion

Adults with long term neurological conditions face complex challenges in daily living, including physical, emotional, psychological and social difficulties. This can lead to higher levels of anxiety and depression as compared to people in good physical health. There is an emerging evidence base for the use of third wave approaches in working therapeutically with clients with long term neurological conditions. The number of papers being published each year that evaluate third wave therapies has been increasing and so a review of the evidence base seemed timely. This review sought to assimilate and appraise the quality of the published empirical studies using third wave approaches such as CFT, ACT and MBCT/MBSR with adults with long term neurological conditions. The findings of the review indicate that using transdiagnostic third wave therapies shows promise in addressing difficulties with anxiety and depression and enabling clients to live a better quality of life despite their neurological condition. However, a number of study methodically issues were highlighted in the quality appraisal and so the findings should be treated tentatively at present. With this in mind, the review discusses clinical and research implications in developing more robust evidence for the applicability and effectiveness of third wave therapies. In particular, how to progress third wave therapies through the Stage Model of Behavioural Therapies (Rounsaville et al., 2001).

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Doctorate in Clinical Psychology
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Service Improvement Project

Can training improve the confidence and skills of staff in the assessment and treatment of Complex PTSD in an inpatient setting?

Word count: 4988

May 2016

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Intended journal for submission:

Psychological Trauma: Theory, Research, Practice, and Policy publishes empirical research on the psychological effects of trauma. The journal is intended to be a forum for an interdisciplinary discussion on trauma, blending science, theory, practice, and policy (Appendix G).

2.1 INTRODUCTION

Complex trauma or complex post-traumatic stress disorder (CPTSD) was proposed by Herman (1992) to describe a syndrome of prolonged and repeated trauma. It came into being when some forms of trauma were found to be much more pervasive and complex (Herman, 1992). Childhood abuse that occurs over an extended time period is one such example (Courtois, 2004). CPTSD suggests clusters of symptoms relating to affect regulation, consciousness, self-perception, perception of the perpetrator, relations with others and systems of meaning (Cloitre et al., 2011; Herman, 1992; Resick et al, 2012).

While there is growing attention to the concept of complex trauma, mixed views precluded the development of DSM-V (American Psychiatric Association, 2013). On one hand, experts in the field argue for the inclusion of a distinct subtype of PTSD that more adequately captures the above cluster of symptoms (Herman, 2012). Such recognition is seen as being the precursor needed for the development of research (Herman, 2012). On the other hand, the dearth of new research into the validity of CPTSD since DSM-IV has led to conclusions that there was insufficient evidence for CPTSD to be included as a subtype in DSM-V (Resick et al., 2012). In comparison, the International Classification of Diseases 11th version (ICD-11; World Health Organisation, 2015) will include CPTSD as a separate diagnosis, as a less conservative approach has been taken than DSM-V's requirement for a large burden of scientific proof (Friedman, 2014).

2.1.1 The association between CPTSD and other diagnoses

Studies have reported an association between CPTSD and Borderline Personality Disorder (BPD) (Ford, 1999; McLean & Gallop, 2003; Yen et al., 2002; Zanarini, Yonge, & Frankenburg, 2002). There is agreed overlap between CPTSD and BPD in terms of; symptoms, such as impaired interpersonal functioning, impaired sense of self, dissociative experiences, anger, impulsivity, and self-harm; and theorised causal links to trauma exposure (Resick et al., 2012). Similarly, there is considerable research demonstrating that child abuse and neglect are significant causal factors in psychosis (Read, Fink, Rudegeair, Felitti & Whitfield, 2008). A review of studies by Read et al. (2008) highlights a dose-response effect, whereby the greater the frequency and/or severity of childhood abuse, the more likely an individual is to develop psychosis. The

authors discuss the implications of this in terms of clinical practice and recommend that all mental health professionals take trauma histories with all patients.

2.1.2 The phase-based treatment approach

While NICE (2005) guidelines exist for the management of PTSD, usually *single* event, research shows these guidelines to be inadequate in addressing the range of dimensions that *complex* trauma involves. It has instead been suggested that a phase-based approach be used in the treatment of complex trauma (Courtois & Ford, 2013; Herman, 1992). This model proposes that challenging the symptoms and behaviours of individuals who are acutely unwell is likely to result in disengagement and subsequent relapse. An initial period of stabilisation is advocated and this is termed Phase One of treatment. Aspects of it can be delivered by any clinical staff member, such as enabling a client to attend to their safety; supporting the client in regulating their emotions and to develop grounding skills to cope with flashbacks and dissociative experiences (Courtois, 2004). Once an individual has been stabilised, treatment can progress to the second phase of remembering the past; and then the third phase of recovery within the context of therapy with a trained psychologist. While training programs such as the Auckland Training Program have been developed based around the three-phase approach, (Cavanagh, Read & New, 2004), there are currently limited published evaluations of their effects.

2.1.3 The need to ask about abusive experiences

The UK Department of Health published a briefing paper on Implementing National Policy on Violence and Abuse (NHS Confederation, 2008) that acknowledges the links between violence, abuse and mental health diagnoses. It makes recommendations for staff to be trained in routinely and consistently asking all patients about abuse at first contact and at subsequent assessments. Despite this, many professionals fail to ask about abuse (Read, Hammersley & Rudegeair, 2007; Read et al., 2008). Barriers to asking include; concerns about distressing clients; fear of vicarious traumatisation; fear of inducing "false memories"; more immediate concerns; the client having a diagnosis of psychosis and the clinician having a strong belief in biogenetic causal factors; and lack of training in how to ask and respond (Read et al., 2007; 2008). Given the high prevalence rates of abuse histories amongst mental health service users,

failure to ask may leave a significant proportion of patients at risk, as CSA is suggested to be a better indicator of suicidality than depression (Hepworth & McGowan, 2012).

2.1.4 Inpatient staff training

The improvement of adult inpatient care through delivering and evaluating training was initially highlighted as a policy priority (Department of Health (DoH), 1999; 2002) and continues to be on the agenda, with particular attention paid to registered nursing staff and healthcare assistants (NICE, 2014). Despite this priority, methodological and practical concerns of organising staff training within inpatient settings still exist (Bee et al., 2005; Milne & Roberts, 2002). Organisational challenges such as staff shortages and a lack of commitment by management are frequent barriers to training implementation (Bee et al., 2005). Bee et al. (2005) also consider the delivery of the training as important in service engagement. They suggest using an interactive rather than didactic style; a need for flexibility; negotiated timing such as at staff handover; and whole team training.

2.1.5 The current study

As we have seen, there is a known association between complex trauma experiences and presentations such as Borderline Personality Disorder and Psychosis. Both of these presentations are prevalent in inpatient settings, due to individuals often presenting in acute crisis. As such, inpatient staff work closely with those individuals who are most likely to have complex trauma presentations. The literature clearly highlights the need for staff to routinely ask about abuse and to respond to disclosures of abuse, but many barriers still exist which seem to prevent professionals from doing this. One such barrier is staff worries or concerns about the impact of asking or responding to abuse causing distress for the client. A lack of opportunities for staff training also seems highly relevant.

This project will be supporting wider work to improve the recognition, assessment and treatment of complex trauma across secondary care services. As part of this, a service improvement project was previously conducted within the Early Intervention for Psychosis Team in the Trust, to provide complex trauma training to staff and evaluate the outcomes (Walters, Hogg, & Gillmore, 2016). The main researcher was contacted for consultation regarding the current project. At the time of proposing the current

service improvement project, the inpatient ward remained the only team of secondary care services that had not received training for working with complex trauma.

2.1.6 Aims and hypotheses

The aim of the current project was to firstly identify the needs of inpatient staff in working with complex trauma. This will be achieved by meeting with the ward manager to perform a context analysis of the service needs; and will be followed by holding focus groups with staff to ascertain their collective training needs.

Secondly, the project seeks to provide bespoke training that meets these needs and will evaluate the outcome. It is hypothesised that training will significantly improve the knowledge and confidence of staff to ask about trauma histories and to be able to provide phase one (stabilisation) treatment to distressed individuals on an inpatient ward. It is also hypothesised that training will significantly reduce worries or concerns about working with complex trauma.

2.1 METHOD

2.2.1 Design

The project was approved by the University of Bath ethics committee (14-196) and the Service Evaluation Department of Avon and Wiltshire Metal Health Partnership Trust (2014/E019) (Appendix H). The project utilises a cross-sectional and mixed methods design, with a three-month follow-up. Qualitative data was generated from conducting focus groups with staff prior to developing the training; while quantitative data was collected at pre-training, post-training and follow up time points.

2.2.2 Participants

All clinical staff from an inpatient ward were invited to participate. Information sheets were provided (Appendix I) and written consent completed (Appendix J). Seven female members of staff attended the two initial focus groups to discuss the training. Pre-training questionnaires were completed by 23 members of staff, either at the end of the focus groups or prior to training. In total, 15 staff members attended the training, including ward and clinical team managers; nurses; student nurses; and health care assistants. Of the 15 who attended training, two did not complete pre-training questionnaires. Therefore, there were 13 staff members who completed both pre-and

post-training questionnaires and seven of these staff completed a further questionnaire at three-month follow-up.

2.2.3 Measures

Qualitative focus group questions

A structured interview schedule was utilised to elicit participants' responses to set questions. The questions asked about the participants' current understanding and knowledge about complex trauma; and their worries about asking about trauma (Appendix K).

Quantitative questionnaire

No standardised measure currently exists to assess staff training in working with complex trauma. A self-report questionnaire has previously been designed and piloted in the Trust (Walters et al., 2016). It was adapted with permission to produce a 17-item questionnaire, as this suited the purpose of the project as a service improvement project. Four items were designed to assess confidence; five to assess current knowledge; and seven to assess worries. Each item is rated on a five-point Likert scale, ranging from "Strongly Agree" (5 points), "Agree" (4 points), "Neutral" (3 points), "Disagree" (2 points), to "Strongly disagree" (1 point). Total subscale scores could therefore range from 4 to 20 for confidence; 5 to 25 for knowledge; and 7 to 35 for worries. A higher score indicates a greater amount of confidence, knowledge or worries. In addition, open questions were utilised to inform the facilitators of the training only. See Appendix L for example questionnaire.

2.2.4 Procedure

The procedure was guided by the NHS Institute recommended model for service improvement (PDSA; Langley, Nolan, Nolan, Norman, & Provost, 2009). This model includes a cyclical process of 'Planning' for change, 'Doing' or implementing changes, 'Studying' the effects of such changes and 'Acting' on the outcomes of evaluation.

- **Plan** The ward managers and clinical staff were key stakeholders in this process. Overall, the planning highlighted ways to minimise obstacles and optimise opportunities. For example, shift patterns were taken into account

by organising two focus groups on different days; and the ward manager organised the rota three months prior to the training day, to ensure as many permanent members of staff as possible were available to attend one of the two training slots. In addition, posters were utilised to advertise the focus groups and increase staff awareness of the subsequent training.

- **Do** Two focus groups were held in the month before training, whereby a convenience sample of staff members were invited to discuss and identify their collective training needs for working with complex trauma. The focus group discussion primarily guided the format of the subsequent training and, to a lesser extent, the content. The discussions were audio-recorded, transcribed and analysed thematically. The subsequent training materials were developed from an existing training program created by the regional supervisor for delivery to similar teams within the Trust. Themes identified from the literature and the focus group were used to tailor the training to meet the needs of the team. Two training sessions were offered to staff that incorporated PowerPoint, group discussion and experiential skills learning.
- **Study** A questionnaire was administered prior to the training session, to measure the confidence, knowledge and worries of staff in assessing complex trauma and managing the distress on the ward (phase one stabilisation techniques). Post-training questionnaires were administered immediately after the training, to assess changes in these three constructs. The team were given three months to implement the material and skills from training. A follow-up questionnaire was then administered to assess longer term change in working with complex trauma.
- **Act** this project acted as an initial stage of change for service improvement on an inpatient ward and this will be described in the recommendations later.

2.2.5 Analysis

Qualitative data analyses

The qualitative analysis of the focus groups were conducted according to Braun and Clarke's (2006) suggested methodology for six phases of thematic analysis in psychology (Table 2.1). The researcher took a realist epistemological stance to the

analysis, as it was felt that the focus groups would represent a true account of the reality of the participants.

Table 2.1. The six phases of thematic analysis undertaken for qualitative data analysis

Phase	Procedure
Phase one	The focus groups were transcribed verbatim and analysed using theoretical thematic analysis, whereby the data was coded for the research question.
Phase two	Initial codes were identified manually and systematically from the text using colour coding to highlight patterns.
Phase three	These codes were collated into potential themes. The themes were identified at a semantic level, with surface meanings taken as true.
Phase four	The themes were checked at the coded extract level and against the entire data set, to derive an initial thematic "map".
Phase five (a) **Phase five (b)**	This map was refined, with names generated for each main and sub-theme. The thematic map was further refined, with two sub-themes collapsed. In addition to Braun and Clarke's (2006) suggested methodology for phase five, an inter-rater reliability check was completed at this stage. This was performed with the intent to demonstrate trustworthiness and confirmability, as qualitative research is often criticised for lacking scientific rigor (Noble & Smith, 2015). A sample of transcribed text that represented 50% of the data (i.e. transcribed data from one focus group) was separately analysed by a researcher unrelated to the project. The progressive maps were discussed and the two final thematic maps were compared. Similarities and differences were noticed between the two thematic maps, with more similarities than differences existing. Where a difference was identified, the rationale for this was debated until mutual agreement between the two analysts. A final thematic map was therefore produced, whereby a further two sub-themes were discarded; one sub-theme was relocated to a different main theme; and there was minor refinement of theme and sub-theme labels (Appendix M).
Phase six	Extracts of text were selected and embedded within an analytic narrative to form the results section and the report was produced.

Quantitative data analyses

Data was entered into an Excel spreadsheet to produce scores for each participant for confidence (conf), knowledge (know) and worry (worry) at three time points (T1 = pre-training; T2 = post-training, T3 = follow-up). The data was checked for outliers

using known methods (the outlier labelling method; Hoaglin, Iglewiez & Tukey; 1986; Hoaglin & Iglewiez, 1987). This yielded no identifiable outliers in the data for each variable. Descriptive statistics (mean and standard deviation) were generated using SPSS statistics software version 20 (IBM). A visual inspection of the histograms and box plot graphs indicated three potential outlier results (T2conf, T3conf, T3worry). The data met assumptions for normality by consulting the Kolmogorov-Smirnov statistic and did not violate sphericity from consulting Mauchly's test. Therefore, parametric tests could be conducted on the data. As repeated measure ANOVAs were the intended statistical analyses, it was decided not to transform the data. This is in line with current thinking regarding the ANOVA being considered a robust test that performs as it should on skewed distributions (Glass, Peckham & Sanders, 1972; cited by Field, 2013).

Three repeated measures ANOVA's were performed to analyse confidence, knowledge and worries. Planned pairwise comparisons were conducted for pre- and post-training data (T1-T2); pre-training and follow-up data (T1-T3); and post-training and follow-up data (T2-T3). Data regarding effect size η^2 (Eta squared) were calculated using Cohen's estimations for within group changes. Effect size conventions are based on Cohen's (1988) estimations of; small = 0.01; medium = 0.059; large = 0.138.

2.3 RESULTS

2.3.1 Qualitative Focus Group

In response to aim one, thematic analysis yielded several key themes which shaped the training program. Figure 2.1 represents a visual depiction of the relationships between themes. Four main themes evolved, with a number of subthemes clustered around each main theme:

1. *Understanding the heterogeneity of client experiences*
2. *Negative past experiences*
3. *Challenges to working with trauma*
4. *Training needs and preferences*

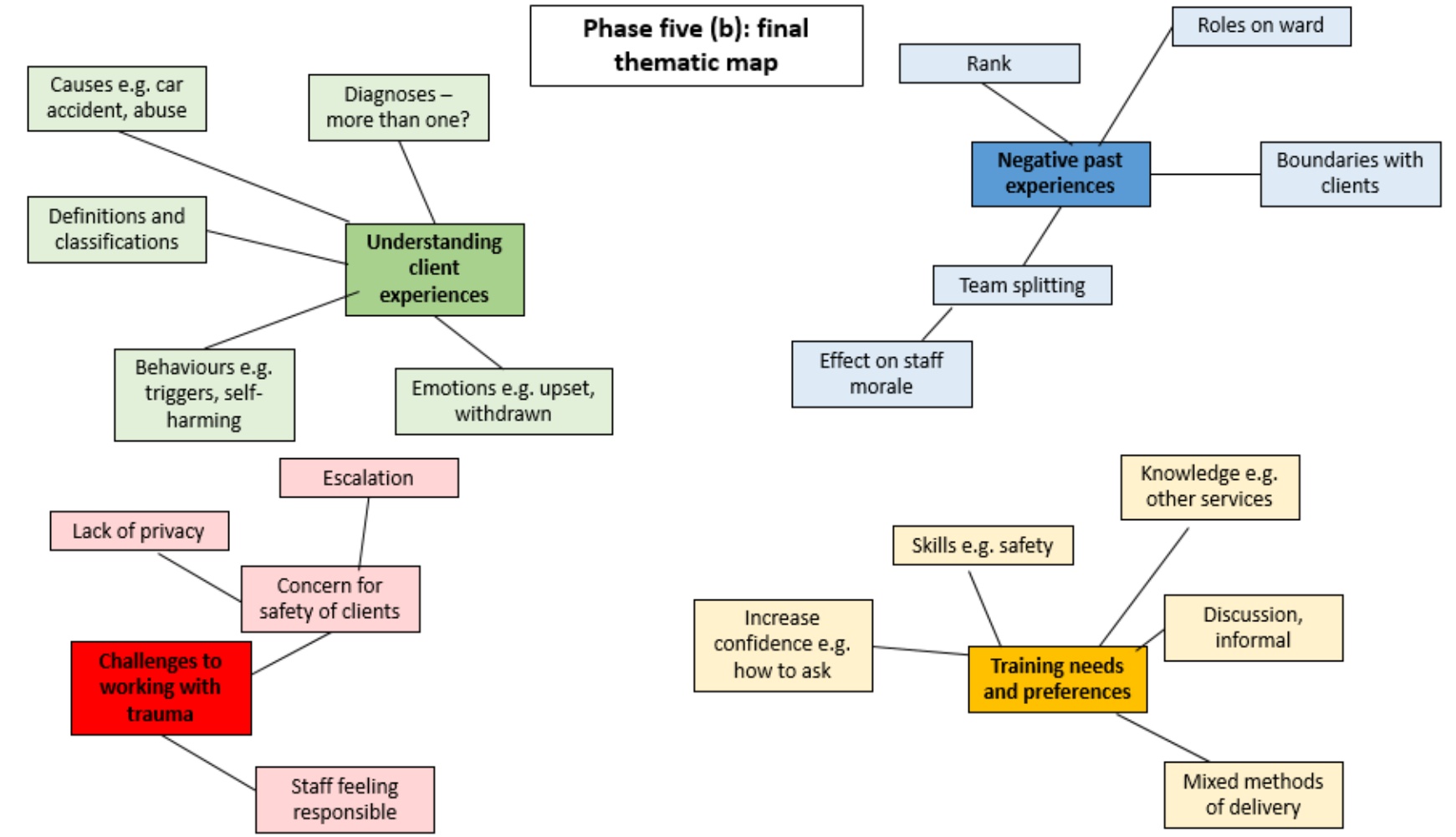

Figure 2.1 Visual depiction of emergent themes.

Understanding the heterogeneity of client experiences Staff members demonstrated different levels of understanding of complex trauma experiences for patients. The heterogeneity of client trauma experiences was discussed, in terms of there being a number of different causes to trauma. In particular, there was some confusion around single event trauma (type I) and complex (type II) trauma experiences.

> *"Car accidents—that causes PTSD, doesn't it?"*
>
> *"Death in the family…"*
>
> *"And physical abuse or sexual abuse"*

Staff described how they thought people can respond differently to the same potentially traumatising circumstances.

> *"Well, I was thinking that trauma is different for different people, isn't it? Because what might be just nothing to me might be quite devastating for somebody else. So it's defining trauma really that I found quite difficult when I was filling the form out. Because there's-- different people classify it differently, don't they?"*

There was some uncertainty in understanding whether an individual could have both a diagnosis of Borderline Personality Disorder and trauma.

> *"It says in her notes that she has been abused. Can someone have two diagnoses?"*

The training therefore covered information about what complex trauma is, how it is different to PTSD, and the association between complex trauma and diagnoses such as Borderline Personality Disorder and Psychosis, to aid understanding of client's and staff's experiences on the ward.

Negative past experiences The difficult client experiences that tend to be associated with complex trauma also have considerable impact on the resources of a staff team. Ideas about team splitting and boundaries emerged, and the resulting effects on staff morale**.** In particular, past experiences of feeling powerless and disconnected when working with Personality Disorders as a staff team resonated with a number of staff members.

"In the past we've had, you know, with personality disorders… that there is a lot of team splitting. And that's difficult."

"I didn't get involved in it. But there were certain members of staff on the ward who were… over-involved, I feel. So I kept my distance from it really. It affected staff morale for a time."

"It happens more than once, and these chosen ones, they just laid their own boundaries"

"If you told people or asked people to back off they said "no, we're not". And there's that splitting of the ranks."

From these themes, it was identified that previous negative experiences may be influencing staff morale and therefore the care they are able to provide to client's who demonstrate more challenging behaviours. It seemed important to include in the training that Borderline Personality Disorder can be more compassionately understood as a complex trauma reaction (although not everybody with a diagnosis will have experienced trauma). The importance of staff self-care was also included in the training, although this was not the focus of the training package.

Challenges to working with trauma A number of perceived barriers seem to get in the way of the staff team being able to work as confidently and competently as they would like with clients with complex trauma experiences. Asking about traumatic experiences seemed a particular worry, with emphasis placed on the words used and the impact of these words on the patients.

"I don't know what to say to some people when they are distressed"

"I worry I will make it worse, use the wrong words"

These worries in turn lead to an avoidance of talking about trauma, with a sense of responsibility for any distress caused being shouldered by the staff.

"I try not to talk about it unless they want to"

"They might hang onto my words"

"Because sometimes you shouldn't ask. It will make things worse and—like, the patient escalates."

A lack of confidence in their own abilities and awareness about the role of the ward in stabilising distressed individuals was also apparent from the discussions.

"Can we do that?"

"We haven't really had any training in that... us health care assistants"

As well as the training covering the role of inpatient staff in providing stabilisation to clients as part of the three-phase approach, time was also dedicated to discussing how to ask about trauma. This included examples of the language that could be used by staff.

Training needs and preferences The staff preferences for the content and method of delivery of training were mixed, and at times, conflicting in their ideas. This confusion about their collective training needs may have reflected the confusion staff felt about understanding and working with complex trauma.

"I also want to know, like, can they get better?"

"Have a broad overview, but then more detail"

"Like, some things to read, but also that we want to talk about it"

More directive questioning elicited preferences for informal and discussion-based training that was supplemented by written material and skills-based training.

"*Some skills I can take away"*

"*I quite like talking around a table. But maybe have some, headings or, you know-- I think PowerPoint-- it just gets lost."*

From this discussion, the format of the training was devised. The training was set-up around a table to aid discussions, in view of a projector screen. PowerPoint was used with frequent discussions to explore the ideas and to draw on the current experiences and resources of staff. The training provided skills through experiential exercises. Hand-outs and worksheets summarising the phase-one skills were given out to staff to aid practise.

2.3.2 Quantitative results

To evaluate the outcome of the training for aim two, questionnaire completions rates and demographics are presented in Table 2.2 and data analysis for all measures at pre-, post- and three-month follow-up evaluation is presented in Figure 2.2 and Table 2.3.

Table 2.2 Questionnaire completion rates and demographics

Demographics	**Pre-training**	**Post-training**	**3-month follow-up**
	N=21	**N=13**	**N=7**
Gender			
Male	5	4	2
Female	16	9	5
Designation			
Ward Manager	1	1	1
Clinical Manager	1	1	1
Registered Nurse	5	4	2
Student Nurse	2	1	0
Healthcare Assistant	12	6	3

N = number

A repeated measures ANOVA determined that mean confidence differed statistically between time points ($F_{(2,12)} = 18.0$, $p<.001$). *Apriori* comparisons using the Bonferroni correction revealed that staff training elicited an increase in confidence from pre-training to post-training (10.6 to 16.0) that was significant ($p=.001$). However, this was not maintained between post-training and follow-up (16.0 to 13.7; $p=.128$).

A significant difference in knowledge was found across time ($F_{(2,12)} = 8.0$, $p<.05$). *Apriori* comparisons using the Bonferroni correction revealed that staff training elicited an increase in knowledge from pre-training to post-training (14.4 to 16.7) that was significantly different ($p=.028$). Overall, staff knowledge increased from pre-training to follow-up (14.4 to 18.1), which was statistically significant ($p=.042$). However, the increase observed between post-training and follow-up (16.7 to 18.10 was not significant ($p=.66$). Therefore, the significant change in knowledge occurred between pre-and post-training.

A significant difference was found for worry across time $F_{(2,12)} = 11.4$, $p<.05$. *Apriori* comparisons using the Bonferroni correction revealed that staff training elicited a decrease in worry from pre-training to post-training (26.3 to 19.7) that was significant ($p= .026$). However, this change was not maintained between post-training and follow-up (19.7 to 21.0; $p=.964$).

Figure 2.2 The effect of staff training on staff confidence, knowledge and worries.

In terms of Cohen η^2, effect sizes for with-in group comparisons pre to post-intervention, there was a large effect size with regards to an increase in confidence ($\eta^2 = .63$); and knowledge ($\eta^2 = .49$); and a large effect size with regards to a decrease in worry ($\eta^2 = .37$).

Table 2.3 Descriptive statistics and statistical analyses scores

Measure	**Pre-training N=21 M (SD)**	**Post-training N=13 M (SD)**	**Follow-up N=7 M (SD)**	**ANOVA N=7**	**Pre-post M difference N=13**	**Pre-follow M difference N=7**	**Post-follow M difference N=7**
Confidence	11.43 (2.40)	15.46 (2.57)	13.71 (2.93)	18.0 **	-5.43 **	-3.14 ns	2.27 ns
Knowledge	16.76 (3.33)	17.38 (1.76)	18.14 (1.68)	14.2 *	-2.29 *	-3.71 *	-1.43 ns
Worries	24.62 (4.12)	21.62 (7.08)	21.00 (6.45)	11.4 *	6.57 *	5.27 *	-1.27 ns

Note: N = number; mean = M; standard deviation = SD shown in parentheses; M difference = mean difference for pairwise comparisons. * = p<.05, ** = p<.001

2.4 DISCUSSION

This project used a mixed-methods design to, firstly, ascertain the training needs of clinical staff from an inpatient ward working with complex trauma, through discussion with the ward manager and staff. Secondly, the project aimed to impact on the confidence and skills of inpatient staff working with individuals with complex trauma, by providing training to the clinical staff team, and to evaluate the outcomes of this training. This discussion is embedded within the NHS Institute model for service improvement – "Plan, Do, Study, Act" (PDSA; Langley et al., 2009).

2.4.1 Impact of focus groups

In line with the first aim, the training needs of staff were elicited by dedicating time to planning with the key stakeholders and this constituted the "Plan" stage of the NHS Institute model (Langley et al., 2009). This planning enabled service needs and barriers to be identified and circumvented, such as being mindful of safe staffing levels and taking account of rota patterns for optimal attendance. Equally, staff needs and barriers could be identified through holding the focus groups, and training developed accordingly. The resulting tailor-made training program appeared to address these needs and barriers, by promoting discussion and providing materials to facilitate understanding and skills. As such, it represented the "Doing" stage of service improvement (Langley et al., 2009).

The literature highlights the importance of inpatient staff asking about and responding to abuse disclosures; whist also acknowledging the barriers to asking, such as concerns about distressing clients and a lack of training in how to ask and respond (Read et al., 2007; 2008). Consistent with the literature, several barriers to assessing for and treating trauma were identified by the team. In particular, within the theme of "*the challenges of working with trauma*", worries about distressing clients by using the wrong words was elucidated. The theme "*understanding the heterogeneity of client experiences*" illustrates the confusion of staff in knowing the differences between single event and complex trauma; and whether someone can have more than one diagnosis. This seems to mirror the confusion within the literature about the construct of complex trauma and the implications for diagnostic criteria in DSM-V (Herman, 2012; Resick et al., 2012) and ICD-11 (Friedman, 2014) and suggests the need for training.

2.4.2 Impact of training

In response to the second aim, the questionnaire data indicates that staff confidence and knowledge about working with complex trauma increased following the training session and worries about working with complex trauma decreased. This formed the "Evaluate" stage of the model (Langley et al., 2009) and replicated the findings of the Auckland training program (Cavanagh et al, 2004) to provide additional support for the utility of training.

Whilst an overall increase in confidence and knowledge and a decrease in worry was also found at three-month follow-up, the substantive and statistically significant change occurred between pre-and post-training. Whilst staff were encouraged to consider how they could use the ideas from the training in their daily roles, this seems unlikely to have been sufficient to sustain the changes in knowledge, confidence and worries to the follow-up time point. That being said, the observed trends for an increase in knowledge and confidence; and a decrease in worry were in the right direction between post-training and follow-up time-points; and didn't recede to pre-training levels. Overall, this is consistent with the challenges of sustaining change following training that has previously been noted (Bradshaw, Butterworth, & Mairs, 2007; Milne, Westerman & Hanner, 2002; de Silva, 2014).

2.4.3 Service implications and recommendations

This project acts as an initial stage of service improvement, with continued cycles implicated (Langley et al., 2009). It was agreed with the service for a written summary of the results and recommendations to be presented to the ward manager (Appendix N) and discussion took place between the author, field supervisor and ward manager (Appendix O). Recommendations to the service were made (Table 2.4) and formed the "Act" stage of service improvement (Langley et al., 2009).

Table 2.4 Recommendations to the service

Recommendation one	As not all staff members were able to attend the training, the provision of further training is warranted. If the ward manager is able to keep a central record of staff attendance, then those staff who could not attend can be prioritised at the following training session that is offered. For subsequent training, the advance planning of staff shifts with the team manager and promotion of training through posters would again be helpful to occur as part the planning phase.
Recommendation two	To fully sustain change at follow-up, greater consideration of the barriers to implementation could be embedded within the training by using a relapse-prevention design, as noted in the literature (Milne et al., 2002). This may promote the transfer of training through the heightened awareness of likely barriers and using group problem-solving to negotiate these barriers.
Recommendation three	The training could further be supported by offering a regular supervision slot or trauma-focused case discussion to ward staff members, as it has been suggested that this can help to maintain the changes achieved through training (Bradshaw et al., 2007).
Recommendation four	Designating a "change champion" for promoting complex trauma awareness on the ward would be beneficial in the continual development of the ward as a trauma-informed service (de Silva, 2014). Change champions aim to generate "buy-in" to new practises, through demonstrating commitment to the idea (de Silva, 2014). While the ward manager is currently acting in the role of a managerial change champion, the additional involvement of a clinical change champion has been highlighted as being most effective. It has been demonstrated that this is particularly useful when seeking to appeal to doctors (de Silva, 2014), who were absent from the present training. Psychiatrists have been found to be particularly unlikely to receive training in abuse issues despite being key members of the multi-disciplinary team and frequently responsible for initial assessments (Cavanagh et al, 2004).
Recommendation five	The provision of a resource pack to centralise resources and aid training implementation into current practice would be advantageous. Research indicates written material to be most effective when developed in partnership with the key stakeholders (de Silva, 2014).
Recommendation six	The attendance of senior staff to the training was helpful in setting an example as managerial change champions and is likely to have conveyed the importance of complex trauma awareness and training. A potential limitation is that the differences in levels of knowledge and years of experiences in the group training may have promoted some reticence from the junior members of the team in contributing as fully to the discussion. Separate sessions based on experience levels may help to mitigate this, for example, an introductory session for less experienced staff members and a "top-up" session for more experienced staff members (Bradshaw et al., 2007).

2.4.4 Future training evaluation

When the training is offered in the future, it would be helpful for the service to again consider evaluating the training using questionnaires at pre-, post- and follow-up time points. This would help to ascertain the impact of the above recommendations in sustaining changes in confidence, knowledge and worries at follow-up. In particular, to evaluate the implementation of recommendations two (consideration of barriers); three (support and supervision); and four (designating a "change champion"); in order to promote a trauma-informed service that is mindful of the systemic factors needed for long-term change.

2.4.5 Response from the service

Feedback was elicited from the ward manager regarding the changes noticed since the training. The staff were described as being initially "engaged" in understanding and working with complex trauma. However, this thinking was reported to become less present over time due to other ward priorities. The suggested recommendations were received with willingness and enthusiasm; and described to be useful. From this, changes to ward practise were discussed. The ward manager hopes to implement complex trauma training as part of a regular "MOT" package for all staff members. This will help to embed the concept of complex trauma into the context of the ward. In addition, two members of staff of different bandings who have a keen interest in trauma have been identified as potential "clinical change champions" to further promote the ward as a trauma-informed service. The project summary was disseminated to the staff team by hard copy, as agreed with the service. In addition, the ward manager hopes to use the project report to evidence the value of training for quality assurance.

2.4.6 Study limitations and research implications

The small sample size has implications for the achieved power in the study and therefore the significance of the results needs to be treated tentatively. Collecting more information on the reasons why participants could not be followed-up would be useful. By negotiating such barriers, the number of participant responses at follow-up may increase and in turn would increase the number of participants who could be included in the statistical analyses at all three time points. The training materials were drawn from evidence-based practice and were developed idiosyncratically to meet the needs

of the inpatient staff team and the service. While this may have been more effective than a standardised training package, the lack of validation may limit external validity. The questionnaires were developed to assess the key components of training as highlighted from the literature and previously piloted in the Trust. However, they have not been assessed for criterion validity and therefore some caution must be taken when drawing conclusions about the efficacy of improvement when employing a non-validated measure. In addition, the follow-up period may have not given participants sufficient time to deploy their new knowledge and skills, for sustained statistical and reliable change to be observed three months later. However, a longer follow-up time period may have increased the likelihood of attrition due to staff turnover and sickness. This could render the response rate too low for meaningful analysis. Future research studies in this area way want to consider how to balance this trade-off, to ensure adequate time for training implementation against the possibility of participant attrition. However, as this area of work is developmental, the findings of the current study are useful in directing future larger scale studies.

2.4.7 Conclusion

This project sought to identify the needs of inpatient staff and developed a tailor-made training package to address these needs and barriers. Self-reported staff confidence and knowledge about working with complex trauma increased following the training, and worries about working with complex trauma decreased. In order to sustain the benefits of training for longer, a number of recommendations were made to the service. Making the provision for on-going training and supervision will form a crucial part of future service development as a trauma-informed service. The continued evaluation of tailor-made training is indicated as part of this development.

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Main Research Project

Injury attributions, self-criticism and psychological distress in ABI and TBI survivors

Word count: 5584

August 2016

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Intended journal for submission:

Neuropsychological Rehabilitation publishes experimental and clinical research related to rehabilitation, recovery of function, and brain plasticity. The journal is aimed at clinicians who wish to inform their practice in the light of the latest scientific research; at researchers in neurorehabilitation; and finally at researchers in cognitive neuroscience and related fields interested in the mechanisms of recovery and rehabilitation. It has published several of the studies cited in this project. No word count is stipulated (Appendix A).

3.1 INTRODUCTION

An acquired brain injury (ABI) occurs after birth, and is not related to congenital defect, degenerative disease, hereditary causes, or induced by birth trauma (The Brain Injury Association, 2011). Causes of ABI include hypoxia, haemorrhage, encephalitis, stroke, substance abuse, toxic exposure, trauma and tumour. Research has highlighted that individuals tend to perceive the factors responsible for their brain injury as outside of their control, for example high blood pressure and smoking (Townend, Tinson, Kwan, & Sharpe, 2006).

Traumatic brain injury (TBI) is a sub-type of ABI and is defined as a traumatically induced structural injury and/or physiological disruption of brain function as a result of an external force (The Brain Injury Association, 2011). Most moderate to severe TBIs result from motor vehicle accidents, falls, bicycle accidents, assault and sports injuries (Ponsford, Sloan, & Snow, 2013). These can be stressful and sudden-onset life events that may involve actual or perceived life-threat; severe physical harm; exposure to violence; and the injury or death of another individual (Delahanty et al., 1997). In such circumstances, individuals who perceive themselves to be responsible may also believe they had agency to control or change the outcome of events (Delahanty et al., 1997).

These hypothesised phenomenological differences in ABI and TBI may result in differences in beliefs about responsibility, controllability and blame, and may be better understood in terms of attributional theory.

3.1.1 The role of injury attributions and responsibility

A large body of research has been devoted to the study of attributions as mediating the effects of adverse life events on negative affect (Anderson, Krull, & Weiner, 1996; Sweeney, Anderson, & Bailey, 1986; Tennen & Afeck, 1990). The most prominent of the relevant models is the revised learned helplessness model (LHM). According to the LHM, an individual's attributions for negative and uncontrollable events can create a vulnerability to depression (Abramson, Seligman, & Teasdale, 1978; Peterson & Seligman, 1984).

The concepts of controllability, responsibility and blame have been explored in diverse areas, such as lung cancer and AIDS (Mantler, Schellenberg, & Page, 2003); renal

disease (Rich, Smith, & Christensen, 1999); spinal cord injury (Richards Elliott, Shewchuk, & Fine, 1997) and motor vehicle accidents (Nickerson, Aderka, Bryant, & Hofmann, 2013). Rich et al., (1999) suggest that in some cases blaming others rather than the self for a health condition may act as a buffer against negative affect. Meanwhile, the active role of an individual in a vehicle accident (driver vs. non-driver) and attributional style (internal vs. external) have been identified as associated with psychological distress development (Nickerson et al., 2013). Interestingly, there is some evidence to suggest that there may be a different impact of internal attributional style for future threat and present response. Nickerson et al. (2013) suggest that an internal attributional style may be self-protective against future threat and associated with lower levels of PTSD. The authors also suggest that an internal attributional style may be associated with increased anxiety and depression in the present. Bringing this together, we hypothesise that a tendency for an external attributional style in ABI and an internal attributional style in TBI may result in differences in psychological reaction and distress.

3.1.2 Psychological difficulties after brain injury

An estimated 135,000 people suffer from an ABI each year in the United Kingdom (Department of Health, 2005). They face huge challenges and difficulties adapting to their changed circumstances, including physical, emotional, psychological and social difficulties; with significant impact on an individual's self-concept (Shields & Ownsworth, 2013). Many individuals post-brain injury experience a discrepancy between their pre- and post-selves which makes them particularly vulnerable to developing anxiety and depression (Downswell et al., 2000; Vickery, Gontkovsky, & Caroselli, 2005). The impact on self-concept may be understood in terms of self-discrepancy theory (Higgins, 1987) and addressed using a "Y-shaped" model of neurorehabilitation (Gracey, Evans, & Malley, 2009). In addition, an individual's appraisal of a stressful event and ability to cope may be highly relevant, as post-injury impairments can compromise brain injury survivors in their ability to achieve goals and utilise personal and social resources to cope with stress (Stress Appraisal and Coping theory; Lazarus & Folkman, 1984). Such challenges are thought to give rise to increased levels of anxiety and depression. It is estimated that between 30-70% of people who experience a TBI are likely to experience significant psychological difficulties (Soo & Tate, 2007).

Within the UK National Health Service (NHS), services respond the same to the psychological difficulties of ABI and TBI survivors, seeking to help people psychologically with an emphasis on initial neuropsychological assessment and offering psychological therapy. Psychological difficulties in brain injury have been addressed by transferring evidence-based therapies from mainstream practice, with Cognitive Behavioural Therapy (CBT) being most widely applied (Fernie, Kollman, & Brown, 2015). Recently, there has been interest in transdiagnostic factors such as shame and self-criticism. It is in the nature of the ABI/TBI distinction that it might be expected that people psychologically respond and react differently if they have an ABI or a TBI, according to the attributions made. Those who feel responsible for their injury (an internal attributional style) may experience greater shame and self-criticism. If this is so, this should be considered when assessing, treating and supporting ABI and TBI survivors.

3.1.3 The role of shame and self-criticism

Shame and self-criticism have been found to be linked to a wide range of mental health difficulties (Gilbert, 2000, 2006; 2009a, 2009b), including anxiety (Cox et al., 2000) and depression (Dunkley, Sanislow, Grilo, & McGlashan, 2009; Luyten et al., 2007). Self-criticism has been associated with more severe depressive symptomology (Luyten et al., 2007), poorer response to psychotherapy (Rector, Bagby, Segal, Joffe, & Levitt, 2000), and a greater likelihood of relapse (Segal, Shaw, Vella, & Katz, 1992). Meanwhile, shame has been shown to be associated with higher levels of self-criticism, lower self-compassion (Gilbert & Miles, 2000) and depressive rumination (Cheung, Gilbert, & Irons, 2004).

Emerging research into the emotional experiences of TBI and ABI survivors has indicated that shame and self-criticism are related to significant distress post-injury (Freeman, Adams, & Ashworth, 2014; Jones & Morris, 2013). Qualitative analysis amongst male TBI survivors has identified a recurring theme of self-criticism and regret in relation to the changes experienced since injury; the subsequent impact on others and also their own role in the circumstances of their injury (Freeman et al., 2014). This links to an emerging evidence base on the use of a self-compassion approach in brain injury, including two case studies using Compassion Focused

Therapy (CFT) in TBI (Ashworth, Gracey, & Gilbert, 2011; Ashworth, 2014); a case study using mixed CFT and mindfulness in stroke (Shields & Ownsworth, 2013), compassionate imagery in TBI (O'Neill & McMillan, 2012); and a group CFT intervention for a mixed sample of ABI and TBI survivors (Ashworth, Clarke, Jones, Jennings, & Longworth, 2015). However, the concept of self-criticism in ABI has yet to be compared with TBI, where these factors might be expected to be yet more prominent.

3.1.4 Rationale and aims

Theory suggests that attributional style may be important in brain injury and linked to increased levels of psychological distress. As far as the authors are aware, to date there has been no comparisons between ABI and TBI survivors in terms of attributional style. Emerging evidence suggests that higher levels of self-criticism may be associated with elevated anxiety and depression. What is currently missing in the literature is a study to explore whether an internal attributional style is linked to higher levels of self-criticism and therefore elevated psychological distress.

A more thorough understanding of the role of injury attributions and self-criticism in the development and maintenance of psychological distress following brain injury may yield important insights into psychological mechanisms to be targeted in clinical rehabilitation programmes. This present research aims to explore the differences in these psychological constructs between ABI and TBI survivors.

3.1.5 Hypotheses

1. TBI survivors will be more likely to make internal attributions in relation to the specific circumstances of their brain injury, than ABI survivors.
2. Brain injury survivors showing an internal attributional style will report greater self-criticism than those with an external attribution style, as indicated by a positive association between attributional style, inadequate-self and hated-self subscales of the Forms of Self-Criticising/Attacking and Self-Reassurance Scale.
3. Higher levels of self-criticism and lower levels of the ability to self-reassure will be associated with elevated anxiety and depression, as indicated by scores on the Generalised Anxiety Scale-7 (GAD-7) and Patient Hospital Questionnaire-9 (PHQ-9) respectively.

3.2 METHOD

The study protocol was approved by NHS Berkshire B Committee (ref: 169556) (Appendix Q), the relevant NHS Trust Research and Development departments, and the University of Bath Department of Psychology Ethics Committee (15-179).

3.2.1 Design

The study used a between-groups design. The independent variable was brain injury type (ABI vs TBI). The dependent variables were self-reported measures of attributional style, self-criticism/self-reassurance, anxiety and depression, and satisfaction with life.

3.2.2 Participants

A convenience sample of eligible patients (see Table 3.1) was recruited through specialist services.

Table 3.1. Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
1) to have sustained a TBI that is classified as moderate or severe based on the GCS*, PTA* or LOC (where possible). If this information is unavailable, then an indication of severity could be gained from clinician opinion; *or* to have sustained an ABI that is rated as moderate to severe based on clinician opinion 2) to be between 18 and 65 years of age 3) to have adequate hearing, and receptive / expressive language skills to be able to communicate in an interview 4) to be least three-months post-injury	1) the presence of significant cognitive difficulties (based on previous cognitive assessment where possible or by clinician report) that would affect capacity to consent and the ability to complete questionnaires 2) to be receiving current treatment for a brain tumour or to have received a terminal prognosis 3) to have a recorded diagnosis of a personality disorder or substance dependency

The Glasgow Coma Score (GCS) in the first 24 hours after injury is typically used to grade the severity of TBI. Scores of 3 to 8 indicate severe injury; 9 to 12 moderate injury and 13 to 15 mild injury (Jennett & Teasdale, 1981). If this information is unavailable, the post-traumatic amnesia (PTA) or loss of consciousness (LOC) duration may be used to determine severity of injury. For PTA, scores of less than 60 minutes are considered mild to very mild, scores of 1-24 hours as moderate, 1-7 days as severe and 1-4 weeks as very to extremely severe (Jennett & Teasdale, 1981). While a grading system is not typically used in the case of ABI, severity of injury was based on clinician ratings from the available medical notes.

Services recruited from included: the community neurological and stroke service Sirona Care and Health in Bath; neuropsychological rehabilitation services in North Bristol Trust (NBT) and Gloucestershire Hospitals NHS Foundation Trust (GHNHSFT); and local branches of the national charities Headway and the Stroke Association in Bristol and Bath. A healthy control sample was recruited by approaching family members of clinical participants during home visits and members of the general population in public to complete questionnaires.

3.2.3 Measures

Measures were administered as part of a questionnaire pack to brain injury survivors (Appendix R):

Beliefs about Brain Injury Questionnaire (researcher devised) was based on the Attributional Style Questionnaire (Peterson, et al., 1982); vehicle accident research (Nickerson et al., 2013); and illness beliefs (Illness Perception Questionnaire-Revised; Moss-Morris et al., 2002). The questionnaire has two parts. Part A consists of a nine items to measure beliefs about responsibility, controllability, and blame. Participants were asked to rate the extent to which each statement applies to them on a ten-point Likert scale, with the scale ranging from 0 ("Not at all") to 10 ("Extremely"). Internal attributional style can be derived from item 2 (self-responsible), item 5 (self-avoidable) and item 7 (self-blame), while external attributional style can be derived from item 3 (other-responsible), item 6 (other-avoidable) and item 8 (other-blame). An evaluation of internal consistency was conducted for the subscales. Cronbach's alpha was α = .73 for internal attributional style and α = .89 for external attributional style, indicating acceptable and good internal consistency respectively, without substantial item redundancy. *This is acceptable because of the small number of items (three in each subscale).* Part B asks participants about their beliefs about the causes of their brain injury, by ticking how much they agree or disagree whether a possible cause was relevant for them. The last item is free-response to the statement "*The main cause of my brain injury was…*"

The following measures were administered to both brain injury survivors and to the general population:

Forms of Self-Criticism/Self-Attacking and Self-Reassuring Scale (FSCRS; Gilbert et al., 2004) was developed to measure self-criticism and the ability to self-reassure. It is

a 22- item scale, comprising of two self-criticism subscales known as inadequate self (a sense of personal inadequacy), and hated self (the desire to hurt or persecute the self); and one self-reassurance subscale (the ability to be self-compassionate). Patients are asked to estimate how much each statement is like them on a Likert scale, ranging from 0 (not at all like me) to 4 (extremely like me). Research is currently underway to assess the psychometric properties of the FSCRS in a mixed sample of ABI and TBI survivors, with promising initial results (Ashworth, personal communication).

Patient Health Questionnaire-9 (PHQ-9; Kroenke, Spitzer, & Williams, 2001) is used to measure depression severity. Total scores for the nine items range from 0 to 27. Scores of 5, 10, 15, and 20 represent cut-off points for mild, moderate, moderately severe and severe depression, respectively. It is widely used in health and rehabilitation research and has shown strong test-criterion sensitivity with a TBI sample (Fann et al., 2005).

Generalised Anxiety Disorder-7 Scale (GAD-7; Spitzer, Kroenke, Williams, & Lowe, 2006) is commonly used to determine levels of anxiety. Scores on this 7-item measure range from 0 to 21. Scores of 5, 10, and 15 represent cut-off points for mild, moderate, and severe anxiety, respectively.

Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin; 1985) measures life satisfaction, with the five items intentionally global to enable an overall judgement. Ratings are made on a seven-point scale from 1 (strongly disagree) to 7 (strongly agree). The total score ranges from 5 to 35, with higher scores indicating greater satisfaction. Pavot and Diener (1993) suggest interpretation of scores as: 5 to 9 as extremely dissatisfied; 10 to 14 as dissatisfied; 15 to 19 as slightly dissatisfied; 20 as the neutral point in the sale; 21 to 25 as slightly satisfied, 26 to 30 as satisfied and 31 to 25 as extremely satisfied. The scale has been commonly used with people with TBI (Corrigan, Bogner, Mysiw, Clinchot, & Fugate, 2001; Johnston, Goverover, & Dijkers, 2005).

3.2.4 Procedure

The questionnaires were initially piloted with an individual with TBI, who was invited to evaluate the phrasing and pacing of the questions and to give feedback. Eligible brain injury survivors were invited to participate by their usual clinician or support worker during routine appointments; or by letter of invitation posted by the

participating service. Interested patients either made contact directly or consented to their contact details being forwarded. Preliminary telephone contact provided the opportunity to discuss the best possible location and timing of the interview, to take account of participant's tolerance of stimuli and patterns of fatigue. Figure 3.1 shows the flow of participants through the study.

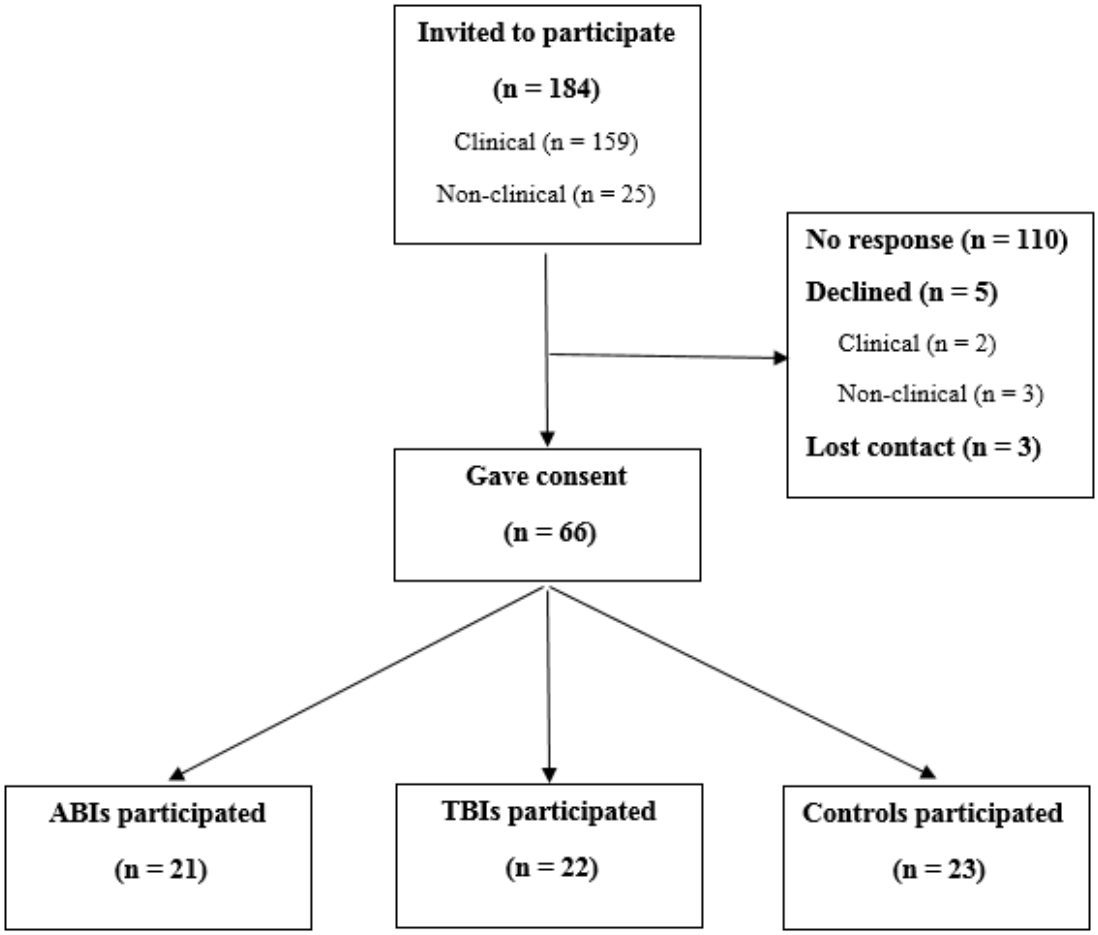

Figure 3.1 CONSORT diagram showing the flow of participants through the study

A participant information sheet was provided (Appendix S) and written informed consent obtained (Appendix T). The questionnaires were administered as part of a research session (Appendix U) that incorporated the recommendations made by Paterson and Scott-Findlay (2002) for interviewing ABI/TBI survivors. Participants were asked to talk about the circumstances of their brain injury, to foster engagement and give time to tell their story. This also primed them to think about the concepts of interest. Demographic information (age, gender, ethnicity) and time since brain injury were also gathered.

On average the interview took 60 minutes to complete. The majority of participants opted to complete the research as a home visit, with a minority of sessions organised at clinical services. A debrief was offered to participants, who were also prompted to ask questions at the end.

3.2.5 Data analytic strategy

The data analytic strategy was decided *a priori*. In order to evaluate the primary hypothesis, a one-way ANOVA was planned to assess between-group differences in attributional style for ABI and TBI survivors. In addition, one-way ANOVAs were to be used to assess group-differences in mean scores on self-criticism, self-reassurance, anxiety and depression measures. Further subsidiary ANOVAs were to be carried out for time since brain injury and satisfaction with life. Where significant differences are identified, post hoc analysis were to be conducted. To evaluate the secondary and tertiary hypotheses, correlational analyses were to be carried out to assess whether there is an association between internal attributional style and self-criticism; and to assess the association between self-criticism, self-reassurance, anxiety and depression. To further evaluate these hypotheses, attributional style and self-criticism were to be entered into a stepwise multiple regression to determine whether they can predict psychological distress (anxiety and depression) in brain injury survivors.

3.2.6 Power calculation

Given the sparsity of comparable studies, an *a priori* power calculation to estimate required sample size has been completed but should be treated as tentative. In line with available reported effect sizes (Ashworth et al., 2014) a moderate effect size of 0.35 was entered into G*Power (Faul, Erdfelder, Buchner, & Lang, 2009). With significance level set as .05 and power at 0.80 a required sample of approximately 60 brain injury survivors (30 in each group) was suggested.

3.3 RESULTS

Analyses were performed using SPSS 22 (SPSS Inc. IBM, Chicago, Illinois, USA), with statistical significance set at $p < 0.05$. Data was inspected visually for normality and screened for outliers, missing data and violations to the assumptions. The assumptions necessary for t-tests and ANOVAs were met unless otherwise indicated.

Treatment of missing data

In the demographic data, there was one age and two brain injury dates missing. In the questionnaire dataset, a single item in the PHQ-9 and a single item in the Beliefs about Brain Questionnaire were missing. The mode was taken for the single PHQ-9 item and the Beliefs and Brain Injury item was coded as a true missing value. Other missing values were excluded analysis by analysis.

Overview

In the following results, the participant characteristics are compared to evaluate comparability of the samples. Measures of psychopathology and self-compassion are also compared across groups, followed by satisfaction with life. As well as three-group comparisons between ABI, TBI and healthy controls, two group comparisons were made as secondary analyses, to compare brain injury survivors as a whole to healthy controls. Next, ABI and TBI survivors are compared in terms of the key attributional style measure (hypothesis 1). The extent to which attributional style relates to self-criticism is analysed (hypothesis 2), as is the association between self-criticism, self-reassurance and psychological distress (hypothesis 3). Finally, the relationship between internal attributional style, self-criticism and psychological distress is considered.

3.3.1 Participant characteristics

Table 3.2 shows participant characteristics, with the demographic data being comparable between TBI, ABI and non-clinical groups. A total of 66 participants took part, of which 22 were TBI survivors, 21 were ABI survivors and 23 were from the general population. There were no significant differences between groups in terms of age ($F_{(2, 62)} = 1.41$, $p>0.05$); gender ($\chi^2_{(2)} = 2.54$, $p>0.05$); or ethnicity (100% White British).

Table 3.2 Participant characteristics

Demographic	TBI group	ABI group	Non-clinical group
Number	22	21	23
Gender			
Males	16 (72.7%)	11 (52.4%)	12 (52.2%)
Females	6 (27.3%)	10 (47.6%)	11 (47.8%)
Age mean (SD)	44.09 (12.86)	49.19 (9.87)	42.82 (15.82)
Ethnicity			
White British	22 (100%)	21 (100%)	23 (100%)

Table 3.3 shows the clinical characteristics of the brain injury groups. As there was a discrepancy in the means and standard deviations for time since brain injury related to outliers on this variable, trimming to three standard deviations from the mean for that group was used. This removed two cases and the time since brain injury re-analysed, showing that the time since brain injury was greater for TBI survivors (mean = 58 months) than ABI survivors (mean = 31 months). An independent t-test was performed on group data for time since brain injury, with equal variances not assumed. This revealed no significant difference between TBI and ABI groups for time since brain injury ($t_{(22.35)} = 1.55$, $p=0.13$).

An independent t-test for memory of events (equal variances not assumed) revealed a significance difference in memory for events between TBI and ABI groups ($t_{(35.43)} = -2.21$, $p=0.034$). ABI survivors report being able to recall a greater amount about the circumstances of their brain injury (mean = 4.38 (SD 4.25)) than TBI survivors (mean = 1.91 (SD 2.94)).

Table 3.3 Characteristics of brain injury groups.

Variable	TBI Group		ABI Group	
Time in months since BI mean (SD)	104.91 (168.75) Trimmed 57.55 (73.83)		30.79 (21.48) Trimmed 30.79 (21.48)	
Memory of events mean (SD)	1.91 (2.94)		4.38 (4.25)	
Brain Injury sub-group number (%)	Vehicle driver	6 (27.3%)	Ischemic stroke	7 (33.3%)
	Vehicle passenger	1 (4.5%)	Brain bleed	7 (33.3%)
	Cyclist	3 (13.6%)	Inflammation	3 (14.3%)
	Pedestrian	2 (9.1%)	Hypoxia	2 (9.5%)
	Trip/fall	5 (22.7%)	Tumour	2 (9.5%)
	Assault	3 (13.6%)		
	Other	2 (9.1%)		
Perceived main cause of Brain Injury number (%)	Drinking	3 (13.6%)	Diet	3 (14.3%)
	Medication	1 (4.5%)	Smoking	2 (9.5%)
	Tiredness	1 (4.5%)	Drinking	1 (4.8%)
	Poor road	1 (4.5%)	Drugs	1 (4.8%)
	Driving fast	2 (9.1%)	Stress	3 (14.3%)
	Risk-taking	2 (9.1%)	Bad luck	4 (19.0%)
	Bad luck	3 (13.6%)	Wrong place	2 (9.5%)
	Wrong place	5 (22.7%)	Ageing	1 (4.8%)
	Other	4 (18.2%)	Other	4 (19.0%)

3.3.2 Descriptive psychopathology and related variables

Anxiety (GAD-7) and depression (PHQ-9)

One-way ANOVAs for GAD-7 (anxiety) and PHQ-9 (depression) indicated there was no main effect of group on anxiety scores ($F_{(2,63)} = 1.076$, $p>0.05$), whilst there was a significant main effect of group on depression scores ($F_{(2.63)} = 3.215$, $p<0.05$). Post-hoc comparisons revealed that depression scores for the TBI group were significantly different to the non-clinical group ($p=0.017$). Other comparisons were non-significant ($p>0.05$). In order to evaluate whether brain injury, regardless of type, is associated with higher levels of anxiety or depression, one way ANOVAs were conducted in which both brain injury groups were combined and compared to the non-clinical

group. These revealed that the brain injured group were overall significantly more depressed relative to healthy controls ($F_{(1,64)} = 6.02$, $p<0.05$), but not significantly more anxious ($F_{(1,64)} = 2.03$, $p>0.05$).

Self-criticism (hated-self and inadequate-self)

A mixed-model ANOVA was undertaken with inadequate-self/hated-self scores as the within-subject variables and ABI, TBI and non-clinical groups as the between-group factor. There was a main effect of hated-self and inadequate-self scores ($F_{(1,63)} = 137.47$, $p<0.001$) but no main effect of group ($F_{(2,63)} = 0.633$, $p>0.05$). The interaction between hated-self, inadequate-self and group was also not significant ($F_{(2,63)} = 1.17$, $p>0.05$). In order to evaluate whether brain injury is associated with higher levels of self-criticism, one way ANOVAs were conducted in which brain injury as a whole were compared to the non-clinical group. These revealed no significant differences between groups for inadequate-self ($F_{(1,64)} = 1.14$, $p>0.05$) or hated-self ($F_{(1.64)} = 0.16$, $p> 0.05$) subscales.

Self-reassurance

A one-way ANOVA was completed for reassure-self and group. This revealed no difference main group effect in the ability to reassure oneself for TBI, ABI and non-clinical groups ($F_{(2,63)} = 0.23$, $p>0.05$). A one-way ANOVA for brain injury as a whole versus non-clinical groups revealed no significant differences in the ability to reassure oneself between clinical and non-clinical groups ($F_{(1,64)} = 0.41$, $p<0.05$).

Satisfaction with life (SWLS)

The non-clinical group report greater satisfaction with life (mean = 24.17) compared to TBI and ABI survivors (means = 21.65 and 17.53 respectively). A one-way ANOVA was performed for scores on the Satisfaction with Life Scale. A significant main effect of group was found in scores ($F_{(2.63)} = 3.37$, $p<0.05$), with post-hoc tests revealing a significant difference between the ABI group and non-clinical group ($p = 0.012$). Other comparisons were not significant ($p>0.05$). This can be taken to mean that ABI survivors have significantly lower satisfaction with life compared to the general population. In order to evaluate whether brain injury is associated with lower satisfaction with life, a one-way ANOVA was conducted in which brain injury as a whole was compared to the non-clinical group. This revealed a significant difference

between groups ($F_{(1,64)} = 4.85$, $p<0.05$) with lower satisfaction with life in the brain injury group.

Table 3.4 Descriptive psychology and related variables by group

Variables			Mean (SD)	Clinical descriptor*
GAD-7 Scale Total		TBI	6.36 (5.09)	"Mild"
		ABI	5.71 (6.13)	"Mild"
		Non-clinical	4.04 (5.20)	"Within normal limits"
PHQ-9 Scale Total		TBI	8.82 (6.43)	"Mild"
		ABI	7.62 (5.23)	"Mild"
		Non-clinical	4.57 (5.69)	"Within normal limits"
Inadequate-Self Subscale Total		TBI	12.64 (9.63)	-
		ABI	14.81 (10.51)	-
		Non-clinical	11.13 (7.86)	-
Hated-Self Subscale Total		TBI	2.41 (3.33)	-
		ABI	2.48 (3.08)	-
		Non-clinical	2.13 (2.75)	-
Reassure-Self Subscale Total		TBI	19.77 (6.84)	-
		ABI	19.29 (7.51)	-
		Non-clinical	20.78 (8.31)	-
Satisfaction with Life Scale		TBI	21.65 (7.54)	"Slightly satisfied"
		ABI	17.53 (7.84)	"Slightly dissatisfied"
		Non-clinical	24.17 (5.69)	"Slightly satisfied"
Internal attributional style	Self-responsibility	TBI	4.41 (3.86)	-
		ABI	2.95 (3.46)	-
	Self-avoidability	TBI	2.72 (3.74)	-
		ABI	1.67 (2.71)	-
	Self-blame	TBI	4.41 (4.11)	-
		ABI	2.76 (3.67)	-
External attributional style	Other-responsibility	TBI	4.09 (3.93)	-
		ABI	2.62 (3.97)	-
	Other-avoidability	TBI	4.32 (4.39)	-
		ABI	2.38 (3.79)	-
	Other-blame	TBI	3.00 (3.99)	-
		ABI	2.67 (3.81)	-

**where a clinical descriptor is provided by a validated measure, this has been cited.*

3.3.3 Group comparison for internal attributional style (hypothesis 1)

Internal attributional style is derived from the variables self-responsibility, self-avoidability and self-blame. As there is a specific hypothesis that TBI survivors will be more likely to make internal attributions in relation to the specific circumstances of their brain injury, a one-way ANOVA was completed for internal attributional style (composite total) and group. This revealed no main effect of group ($F_{(1,41)} = 2.48$, $p = .123$). Therefore, attributional style was not found to be different across TBI and ABI survivor groups.

3.3.4 Relationship between attributional style, self-criticism and psychological distress (hypotheses 2 and 3)

Correlational analysis

A composite variable was computed for total self-criticism, by adding together total scale scores for hated-self and inadequate-self. Composite totals were also calculated for internal attributional style, from self-responsible, self-avoidable and self-blame variables; and for external attributional style from other-responsible, other-avoidable and other-blame variables.

Table 3.5 shows the correlations. As multiple planned comparisons were carried out, a Bonferroni correction was applied with *p*-values taken to be significant if equal to or less than 0.003. Bivariate correlational analysis revealed that self-criticism is positively related to anxiety ($r = 0.71$, $p<0.001$) and depression ($r = 0.54$, $p<0.001$). The ability to self- reassure was negatively related to anxiety ($r = -0.46$, $p<0.001$) and depression ($r = -0.52$, $p<0.001$).

Contrary to the secondary hypothesis, the relationship between internal attributional style and self-criticism was non-significant ($r = 0.046$, $p=0.77$). As the planned data analytic strategy for these variables specified multiple regression, this was carried out as planned.

Table 3.5 Correlational matrix for predictor variables

Pearson correlation (2-tailed)	**Depression**	**Anxiety**	**Self-Criticism**	**Reassure Self**	**Internal Attributional Style**	**External Attributional Style**	**Satisfaction with Life**
Depression		.715*	.539*	-.515*	0.129	0.272	-.512*
Anxiety			.709*	-.455*	0.096	0.116	-.468*
Self-Criticism				-.680*	0.046	-110	-.681*

*p<0.001

Stepwise multiple regression

Stepwise multiple regression was chosen for exploratory model building, to evaluate how well attributional style and self-criticism can predict psychological distress. The dependent variable was the composite psychological distress total, derived from total anxiety and depression scores. The independent variables were the composite totals for internal attributional style, external attributional style, and self-criticism scores.

Checking assumptions

A visual inspection of histograms and P-P plots indicated normally-distributed results. The Durbin-Watson statistic was consulted to check whether residuals in the model are independent (uncorrelated). The observed Durbin-Watson value (1.683) is within acceptable limits and close to the designated value of 2 (Field, 2013).

The assumption of no multicollinearity (no perfect linear relationship between two or more variables) was assessed from the Variance Inflation Factor (VIF) and tolerance statistics. The largest VIF for each group was less than 10 (Myers, 1990; cited by Field, 2013) and the average VIF was not substantially greater than 1 (Bowerman & O'Connell, 1990; cited by Field, 2013). The tolerance statistic was above 0.2 (Field, 2013). In all, this confirms that collinearity is not a problem for the prediction model. This sample appears to conform to what we would expect for a fairly accurate model with no case for further case diagnostics to be performed (Field, 2013).

Prediction model

The prediction model contained one of the four predictor variables and was reached in one step with no variables removed (Table 3.6).

Table 3.6 Prediction model

Model		Unstandardized Coefficients		Standardized Coefficients
		B	Std. Error	Beta
1	(Constant)	5.221	1.972	
	Self-Criticism Total	0.561	0.097	.672*

Note: $R^2 = 0.451$, adjusted $R^2 = 0.438$, * $p<0.001$

Self-criticism entered into the regression equation and was significantly related to psychological distress ($F_{(1,41)} = 33.72$, $p<0.001$). The multiple correlation coefficient was 0.672 ($R^2 = 0.451$), indicating that 45.1% of the variance in psychological distress could be accounted for by total self-criticism scores. Internal attributional style (t = 0.785, p=0.44) and external attributional style (t = 1.209, p=0.23) did not enter into the regression equation.

4. DISCUSSION

The present study was conducted in order to explore the role of brain injury attributions and self-criticism in the development of psychological distress in ABI and TBI survivors.

ABI and TBI survivors did not differ in terms of scores on mood measures and measures of self-criticism/self-compassion, satisfaction with life and, crucially, attributions in relation to their brain injury. When the brain injury groups were combined, they differed from healthy controls on depression and satisfaction with life, but not on any of the attribution or self-compassion measures. High self-criticism and low ability to self-reassure are associated with high anxiety and depression, but there was no evidence of an association between internal attributional style and either high self-criticism or low self-compassion.

The finding of similar levels of depression, anxiety, self-criticism and self-reassurance between brain injury survivors and healthy controls is not consistent with the findings from Ashworth et al. (2015). Their study used a mixed sample of ABI and TBI survivors who, rather than being a cross section of those with ABI and TBI, were identified at an initial interdisciplinary assessment as those patients most likely to benefit from a neuropsychological rehabilitation outpatient programme. These patients were reported to struggle with significant self-criticism and problems self-soothing compared to the general population. The reported levels of anxiety and depression for their brain injury sample was in the “moderate” range compared to the present study, where the cross-section of participants were in the “mild” range and similar to healthy-controls.

The finding that high self-criticism and low ability to self-reassure are associated with elevated levels of anxiety and depression is consistent with the general population

literature (Cox et al., 2000; Dunkley et al., 2009; Luyten et al., 2007) and adds to the brain injury evidence-base to date (Ashworth et al., 2015; Freeman et al., 2014; Jones & Morris, 2013).

Overall, these results can be taken to mean that beliefs about responsibility, avoidability and blame are no different for ABI and TBI survivors despite the different causes and circumstances of brain injury. In any case, attributional style does not appear to be linked to concepts such as self-criticism in patients with brain injury. As far as the author is aware, this is the first study to compare ABI and TBI survivors in terms of attributional style.

3.4.1 Limitations

The sample obtained is less than the *a priori* power calculation required. However, given the *p*-values and effect sizes obtained, it is unlikely that clinically meaningful differences would be found between ABI and TBI survivors even with a larger sample size.

The measure of brain injury attributions was devised for the purpose of the present research. Whilst internal consistency has been considered, the measure has not been fully psychometrically evaluated. A future version of the measure may like to further consider assessing test-retest reliability, content and construct validity. Despite these limitations, the devised measure builds on the well-established Attributional Style Questionnaire (ASQ: Peterson et al., 1982). The ASQ utilises bipolar seven-point Likert scales to assess attributional style for hypothetical situations, which suffers from a number of limitations, such as central tendency bias and questionable generalisability. The scale used utilised 10-point unipolar Likert scales, which should address these issues. In addition, the questionnaire addresses the limitations of the attribution measure utilised by Nickerson et al. (2013) for motor vehicle accidents, who suggested that future research should additionally explore self-blame and control alongside responsibility; as a more nuanced measure of attribution was devised that allows for responsibility to be partitioned across multiple sources.

Given that the measure of attributional style was devised for the present study, threats to internal validity need to be taken into account. Factors that could have an impact

include whether participants have previously received psychological interventions; their general coping style; self-efficacy; and adjustment to injury over time. Such factors may impact on the results in terms of modifying beliefs about self-responsibility and self-blame following brain injury, and therefore the reported levels of self-criticism and psychological distress. Individuals with higher levels of self-efficacy may be more likely to engage in psychological interventions and use problem-focused coping methods (Brands, K**ö**hler, Stapert, Wade & van Heugten, 2014); and this may play an important role in the process of adaptation to the consequences of brain injury and regaining quality of life (Rutterford & Wood, 2006). If the selected sample of brain injury survivors tended to have higher levels of self-efficacy, this may additionally account for the reported results on measures of attributional style, self-criticism, and psychological distress being lower as compared to previous similar studies (Ashworth et al., 2015). Furthermore, given that Nickerson et al. (2013) found that an internal attributional style may be self-protective against the development of PTSD, this could also have bearing on the results.

In addition, the GAD-7 and PHQ-9 were administered as measures of psychological distress. The PHQ-9 has received some validation of its psychometric properties in a TBI sample whilst the GAD-7 has not at present. The majority of published studies with brain injury survivors utilise the Hospital Anxiety and Depression Scale (HADS; Zigmond, & Snaith, 1983). However, the HADS has attracted general criticism in recent times due to inconsistencies in its structure (Cosco, Doyle, Ward, & McGee, 2012) and psychometric properties (Coyne & van Sonderen; 2012), and in relation to the interpretation of the depression sub-scale in ABI (Dawkins, Cloherty, Gracey, & Evans, 2006). Whilst the GAD-7 and PHQ-9 may similarly require clinical judgement for the interpretation of items that may tap into consequences of brain injury (Dawkins et al., 2006), their administration in a clinical interview can give the opportunity to check interpretation of items and help to circumvent these issues.

The study was designed to be as inclusive as possible, and therefore no maximum time since brain injury was stipulated. It may be that adjustment to the psychological difficulties of interest had occurred over time. However, in the present study correlational analysis indicated no relationship between time since injury and the psychological variables in question.

3.4.2 Clinical and research implications

No differences were found between ABI and TBI survivors in terms of attributions about the circumstances of their injury, or the tendency for individuals to be self-critical or self-reassuring. This can be taken to mean that ABI and TBI survivors probably do not need to be treated differently by clinicians on the basis of these constructs for psychological interventions in neurorehabilitation services, consistent with present practice in NHS services. The finding that those with high levels of depression and anxiety experience significant levels of shame and self-criticism indicates that measures of these should inform the psychological interventions offered regardless of type of brain injury. Clearly it is important that approaches such as Compassion Focused Therapy be thoroughly evaluated so that their utility across diagnostic categories such as ABI and TBI; anxiety and depression can be established (Gilbert 2009a; 2009b).

Other transdiagnostic variables such as insight are likely to reward clinical and research attention. One of the obstacles facing clinical services is that brain injury itself frequently results in a lack of awareness of cognitive, behavioural and emotional sequelae and the impact of such difficulties on an individual's life (Port, Willmott, & Charlton, 2002). Insight could be measured by comparing the self-report of a participant with the report of a significant other such as a relative, friend or professional; or through the administration of outcome measures that measure insight.

Finally, it is possible that attributional issues may be more specific than the measures here allowed, something which could be examined by combining the measures of attributions with identified causes. For example, driver vs non-driver in TBI, smoker vs non-smoker in ABI.

3.4.3 Conclusion

This study sought to compare ABI and TBI survivors in terms of attributional-style, self-criticism and psychological distress and found no important differences in the report of these psychological difficulties. Attributional style itself also did not have any impact on the experience of these patients. Therefore, this study found no evidence to suggest that ABI and TBI survivors should be assessed or treated differently in the psychological interventions that they are offered, regardless of the circumstances, cause and type of brain injury sustained.

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4. EXECUTIVE SUMMARY

An acquired brain injury (ABI) is a brain injury that occurs after birth, such as haemorrhage, stroke or tumour. Research has highlighted that in some cases individuals may perceive long-term lifestyle factors such as high blood pressure and smoking to be important in understanding the cause of their injury. Meanwhile, a traumatic brain injury (TBI) occurs as a result of an external force, such as a motor vehicle accident or violent assault. These are stressful and sudden-onset life events that can involve actual or perceived life-threat and the individual may believe they could have controlled or changed the outcome of events. These differences in the circumstances of ABI and TBI may result in differences in the beliefs held about ideas of responsibility and controllability (attributional style) and therefore impact on psychological adjustment.

People with brain injuries face huge challenges and difficulties adapting to their changed circumstances, including physical, emotional, psychological and social difficulties. This can make them especially vulnerable to developing anxiety and depression. Emerging research suggests that anxiety and depression may be underpinned by high levels of self-criticism and an inability to be self-kind. There is an emerging evidence base highlighting the utility of using a self-compassion approach in brain injury.

Bringing this together, attributions of responsibility may play an important role in the development of self-criticism and psychological distress after a brain injury, with reasons to believe that attributional style may be different in ABI and TBI survivors. This research sought to primarily explore the roles of attributional style, self-criticism and psychological distress and make comparisons between ABI and TBI survivors.

Twenty-one ABI and 22 TBI survivors completed measures about; 1) beliefs about brain injury (attributional style); 2) self-criticism; 3) anxiety; 4) depression; and 5) satisfaction with life. In addition, a general population sample of 23 participants completed the latter four questionnaires, to act as a comparison group.

No key differences were found in terms of attributional-style; tendency to be self-critical; ability to self-reassure or in psychological distress between ABI and TBI survivors. No evidence was found for an association between internal attributional style (self-responsibility and self-blaming) and self-criticism. An association was

found between higher levels of self-criticism and lower levels of the ability to self-reassure with elevated levels of anxiety and depression. Overall, higher levels of depressive symptoms and lower levels of satisfaction with life were found in the brain injury sample as a whole as compared to healthy controls.

Tentatively, these results can be taken to mean that beliefs about self-responsibility, avoidability of an injury and self-blame are no different for ABI and TBI survivors despite the different causes and circumstances of brain injury; and does not appear to be linked to concepts such self-criticism. This can be taken to mean that ABI and TBI survivors do not need to be treated differently by clinicians on the basis of these constructs for psychological interventions in neurorehabilitation services. This finds support for NHS services to keep to the current practise of care in not differentiating ABI and TBI survivors in services on the basis of their injury type.

The finding that higher levels of self-criticism and lower levels of the ability to self-reassure is associated with elevated levels of anxiety and depression is consistent with the general population literature and adds to the brain injury evidence-base to date. However, the participants in the present study reported anxiety and depression levels that were considered to be in the mild range. A previous study found moderate levels of anxiety and depression in their recruited sample. It may be that base rates for psychological distress tend to be higher in clinical settings, as individuals are more likely to be involved in services when they are struggling to adjust to their brain injury. As the present study recruited participants from a number of sources including a community charity, the levels of adjustment may have been greater in the recruited sample and this may account for the reported levels of anxiety, depression and self-criticism being similar overall between brain injury survivors and the healthy controls.

The finding that brain injury survivors tend to report greater levels of depressive symptoms and lower levels of satisfaction with life highlights a need for patients to continue to be helped psychologically by services.

Future research might also like to consider additionally measuring insight through comparing the self-report of brain injury survivors with significant others or the use of validated questionnaires. Clinicians may like to bear in mind that patients who score high on measures of low mood and anxiety may struggle with significant shame and self-criticism. There is a need to thoroughly assess transdiagnostic difficulties such as

shame and self-criticism to inform the psychological interventions that are offered, such as whether Compassion Focused Therapy would be an advantageous intervention to address psychological distress.

5. CONNECTING NARRATIVE

5.1 My background and initial development of research ideas

Prior to considering a journey into Clinical Psychology, I embarked on a degree in Medicine and studied this for two years. On one hand, part of me was drawn to understanding physical health; craving the certainty of an answer or a solution. On the other hand, I realised that human behaviours and beliefs in reaction to difficulties and distress can be far more interesting in its complexity. Instead of a one-off pronouncement of diagnosis there is an ongoing process of understanding the development and maintenance of difficulties. The detailed story of my transfer from Medicine to Psychology perhaps belongs elsewhere. However, due to my beginnings in Medicine, I was drawn to requesting a Neuropsychology Older Adult placement in my first year of training. I feel that Neuropsychology somewhat bridges the gap between Medicine and Clinical Psychology. The experiences and supervision I received on this placement lead to the development of two research projects, as explained later.

At the start of training, I had little experience of research beyond my undergraduate dissertation. I felt most nervous about the academic requirements, as I imagined the step-up from undergraduate dissertation to doctoral-level thesis to be *big*. Although developing and conducting research has been a learning curve and thwart with challenges, I feel the academic requirements have steadily increased with my abilities progressing in parallel. I hope to capture this progression within the following narrative.

My clinical background in the run-up to training focused on roles with severe and complex mental health. In developing the research projects for this portfolio, I wanted to keep my research reasonably broad, but also to encompass and expand on my clinical interests in Neuropsychology, third wave therapies and trauma.

5.2 Critical literature review

My requested Neuropsychology placement was supervised by Dr Leon Dysch of the Community Neuro and Stroke Service in Bath. To my delight, Leon had a keen interest in using third wave therapies in working with long-term neurological conditions that matched my own. As tends to be the case, the evidence base for third wave therapies,

such as Acceptance and Commitment Therapy (ACT) and Compassion Focused Therapy (CFT), is some way behind the likes of Cognitive Behaviour Therapy (CBT). However, there were a number of empirical pieces of research in the area that guided Leon's clinical practice and my own during the placement. During supervision, we identified the need for a review of the evidence base. We were interested in the application of a transdiagnostic approach to working therapeutically with long-term neurological conditions. I wrote the proposal for the literature review whilst on placement, with guidance from Leon to hone the rationale and heuristic value. My university supervisor changed twice before Ailsa Russell came on board. Through our meetings, we developed the methodology of the review to include systematic methods and quality assessment. This was very much a new area for me, as previous literature reviews I have undertaken have been narrative in their design. By endeavouring to use systematic methods, I was required to take a more critical stance in reviewing the included literature, which is a skill I was keen to progress. Ailsa's initial feedback on my first draft pertained to changes to the structure and content, and I am aware that I often struggle to write succinctly! This feedback was incredibly helpful and was something I tried to keep in mind in writing my main research project.

5.3 Service improvement project

I first met Dr Chris Gillmore (Principal Clinical Psychologist for the BANES Psychological Therapies Service) whilst I was on placement for my Working Age Adult placement. Chris was supervising another trainee clinical psychologist from my cohort, who spoke very highly of him. I approached Chris following the Research Fair about his ideas and presented a number of my own. I remember Chris acknowledging my demonstration of leadership in presenting my ideas. It became apparent that Chris is extremely passionate about working with trauma, but also in developing local services through leadership and consultation. In this instance, Chris expressed that the inpatient team had particular training needs in working with patients who have experienced complex trauma.

I set out to write the research proposal, keeping in mind the needs of the service and the university requirements for a service improvement project. Part of the project included the development of a quantitative questionnaire to assess the training package. I sought ethical approval from the University of Bath ethics committee (14-196) and the Service Evaluation Department of Avon and Wiltshire Metal Health

Partnership Trust (2014/E019). In both instances, the approval was relatively straightforward and I was greatly surprised by this. I felt I was acquiring new skills in completing the ethics procedure and this really built on my undergraduate skills

The project development occurred in close partnership with the inpatient service and through consultation with the Ward Manager. Again, this was a new skill for me. Although I have previously offered informal consultation with team members during placements, this time around I was consulting with someone of a managerial position. I really wanted to appear like I had knowledge and skills that I could offer; and to have her support for the project. We developed the project to include an initial training planning session (focus group) with members of the staff team. I analysed these focus groups using thematic analysis, which was my first opportunity to use robust qualitative methods in research. I really enjoyed the process of thematic analysis and working with the richness of the information. We used the identified themes to develop the training content. Whilst Chris is well-rehearsed in delivering teaching and training, my experiences to date have been presentations of 30 minutes in length. I took the lead on a number of sections, including didactic, discussion and experiential exercises. We ran two sessions lasting three hours each in one day. Chris offered some constructive feedback in the break – both what I had done well and tips to make it even better. I noticed how much more confident I felt second time around in my delivery of the exercises. My voice and pacing was much more relaxed too!

I evaluated the training sessions using the devised questionnaire, to assess changes in staff confidence, knowledge and worry at three time points. As is often the case in research, there was considerable attrition in questionnaire completion. Twenty-one staff members completed questionnaires pre-training, 13 post-training and 7 at the three-month follow-up. I personally went to the inpatient ward on several occasions at shift-handover times to make myself available for questions and to help staff in completing the questionnaires. However, there were several staff members who had attended the training who were subsequently on sick-leave. There was also some staff-turnover that couldn't be mitigated at the time. This highlighted to me the importance of being flexible in data collection. Having a good relationship with the Ward Manager, Kathy Bond, was also incredibly helpful in collecting as much data as possible, as she was very willing to encourage her staff team to take part.

The project was ideal for me in that I have a keen interest in working with trauma; and my Personal Planning and Training Needs Assessment (PPTNA) identified that I had little experience in consultation and leadership at the outset of year 1. It also enabled me to develop skills in qualitative/quantitative research and realise the importance of developing a good working relationship with a service for the purpose of data collection. This last learning point in particular I took forwards to my main research project. Overall, these experiences stood me in good stead for the challenges of the main research project that were still to come!

5.4 Main research project

My initial idea for a main research project involved an experimental design to evaluate the additive gain of self-compassion to acceptance for an induced pain task with a chronic pain sample. Unfortunately, just before my proposal was submitted, the external supervisor pulled out due to a "change in interests" of the service. While this was bitterly disappointing at the time, it gave me an opportunity to start afresh with new ideas. I approached Leon Dysch, as I was aware he was keen to supervise a main research project. In our initial meetings, Leon described a clinical observation relating to brain injury survivors. He noted a difference in the beliefs that acquired and traumatic brain injury survivors have about who or what was responsible for their injury. We together wondered if these brain injury beliefs could be related to ongoing difficulties with self-criticism, anxiety or depression. A search of the literature was promising. Professor Paul Salkovskis quickly came on board as an internal supervisor for the project. His knowledge about attribution theory helped to develop the theoretical underpinning, and the project was developed accordingly. I also spoke with an expert researcher in the area, Fiona Ashworth, who was incredibly enthusiastic and encouraging towards the project. The process of developing the protocol required a number of difficult decisions. I debated whether to include a measure of coping or coping style, but decided against this due to the likely burden on participants in terms of fatigue and concentration. In hindsight, the questionnaire pack did not take as long to complete will all participants as perhaps anticipated and it would have been interesting to explore the relationship between coping and the key variables.

Once the protocol had been developed, I piloted the research session with a person with personal experience of traumatic brain injury. She provided useful feedback about the phrasing of questions and the pacing of the session. She was extremely

willing to give her time and again I found the session incredibly helpful in testing out how I could introduce different questionnaires or explain the meaning of different items. I was also extremely lucky to have a PhD researcher with cerebral palsy give feedback on the research materials and advice about the process of completing questionnaires with individuals who experience cognitive, language and motor difficulties.

The next hurdle was applying for ethical approval through the Integrated Research Application System (IRAS). I had no prior knowledge or experience of navigating this process and the application form looked extremely daunting. Months of hard work went into its completion and the associated supporting documents. I also made contact with Principle Investigators through email and in person to ensure services were on-board with recruitment. I was pleased when I booked in my application and it went to Proportionate Review. The panel required some minor amendments that I quickly implemented. I also sent the documentation to relevant Trust R&D offices, to get the ball rolling on R&D approval in parallel. This really paid off, as by early summer of second year, I had all necessary ethical (IRAS ID: 16955), R&D (North Bristol Trust: 3578, Sirona Care and Health: 2015/030) and university approvals (15-179) in place.

Recruitment from the main services was slow over the initial summer months. Sirona sent out letters of invitation and participant information sheets to individuals who met the eligibility criteria. We had an initial interest response rate of approximately 5%. I wondered whether this was due to the known difficulties with memory, initiation and motivation often associated with this patient population. We changed strategy, and a university student on placement with Sirona followed up the letters with a phone call. This gave much better results, with patients often exclaiming that they had intended to make contact but had forgotten, or lost the information. Similarly, the Head Injury Therapies Unit (HITU) at Frenchay made a rehabilitation assistant available to support recruitment. The Brain Injury Rehabilitation Unit (BIRU) at Frenchay also agreed to send written information to former ABI patients who had consented to be contacted for the purposes of research. Again, this gave a poor return rate but unfortunately there was no way to follow this up with phone calls. As BIRU were actively recruiting TBI patients for their own research at the time, it was not until a later date that they similarly agreed to send information to former TBI patients. I regularly met the

services and presented at team meetings to encourage interest in the project. I also learnt the importance of having an active collaborator "on the ground".

My ethics form had also included permission for recruitment from the charity Headway. I spent two days at Headway branches in autumn 2015 and had a good number of service users participate. In fact, I thought that it was so successful that I sought to extend the permissions for ethical approval to include local branches of the Stroke Association for working age adults. As part of a phased recruitment strategy, I most recently approached Gloucester Hospital Trust (R&D 15/112/GHT) to act as a Participant Identification Centre, as part of a final drive in recruitment in early 2016. Although I did not reach my ideal sample size of 60 participants, I suspended recruitment in March 2016 as potential participant referrals had considerably slowed and I wanted to concentrate on writing the project up. I also believe that a sample of 43 brain injury survivors is a real achievement, considering the time taken in recruitment strategies with each service, organising the session with the participant over the phone or by email; travel; and meeting each participant for a home visit. I would estimate the average time spent in travelling to and from a participant's home and in the completion of the research session to be approximately three hours.

In addition, I collected data from the general population to give a comparator non-clinical sample. I required the non-clinical participants to complete a selection of questionnaires from the overall questionnaire pack. In many ways, I found recruitment for this harder than collecting the clinical sample. Although I was collecting a sample of convenience, I wanted to reduce bias as much as possible. One strategy I used was to ask the family member of a clinical participant if they would complete the questionnaires. This was helpful in terms of crudely matching for age, ethnicity, and educational level. However, it was largely opportunistic, as I didn't know in advance of a home visit if a partner or family member would be present. Moreover, brain injury and its consequences often put a huge strain on relationships leading to intimate and family relationship breakdown. The clinical participants I met often talked about post-injury separation and divorce. This meant I needed another strategy to recruit a non-clinical sample. My next idea was to approach members of the general population in public places. I felt extremely nervous at the idea of walking up to somebody and asking them to complete some questionnaires. I thought about how I usually react to people completing surveys in the street – a polite "no" without even breaking my

stride! With this in mind, I decided that a captive audience might be a better bet. I approached people in food courts and coffee shops who were already sat down and less likely to move. The token gift voucher helped to incentivise participation to some degree. Overall, these recruitment strategies paid off, as a total of 23 people from the general population took part.

I feel that the successes and struggles of developing, recruiting for, and writing up a research project of this scale has been immensely rewarding, albeit challenging too. I had hoped to find significant results to support my hypotheses. Whilst this may not be the case, I feel my results are interesting in themselves, in that it tells us there aren't the hypothesised differences for TBI and ABI survivors. I hope to think with Paul over the summer about publishing the project. I believe that it is important to publish non-significant findings as much as significant ones, as all too often there is a tendency for researchers to bury non-significant findings.

5.5 Case studies

At first, the idea of conducting a single case experimental design (SCED) was intimidating. It was not until the second year of training that I bit the bullet to complete one. I felt anxious about its completion, as none of my supervisors thus far had routinely collected pre- and post-therapy data, let alone baseline and weekly measures. I also felt unsure of how to get clients on board with the idea. Planning what measures could be used seemed crucial to me. In each of the case studies, I carefully considered validated measures that could be administered pre-therapy, during therapy and at post-therapy time points. I often felt these measures were too lengthy to administer on a weekly basis. Therefore, using Visual Analogue Scales (VAS) to rate variables most relevant to the individual client seemed to tick the box for practicality. Using VAS also fitted well into a CBT framework, as a tool to use as part of checking-in and developing an agenda.

Overall, the case studies have been really useful means of me developing good habits in routinely measuring outcomes in my clinical work. In particular, to use psychometrically validated measures, but also to supplement these with idiosyncratic measures, in order to truly capture the processes of change. I hope that continuing to use routine outcome measures is something that I take forward in my clinical practice beyond training. I would also be keen to encourage and supervise others in the utility

of routine measures, as it does not seem to be an embedded part of clinical work in many of the services I have experienced.

5.6 Implications for future practice

I hope to publish a number of research pieces from my main research and case study portfolios, as I have not previously undertaken research that could be published. Ideally, I would like to start the process of preparing the documents for journal submission in the summer post-viva, with the support of my supervisors. I hope to continue in conducting psychological research once I am qualified, but I am also aware of the difficulties in doing so as a clinician employed by the NHS. A pragmatic approach to this might be through empirical case studies/case series, service improvement projects, and supervising trainee research. Once I have settled into my career, there may be the potential to be involved in academic research through collaboration with a University. In any event, I hope to continue to develop as a scientist-practitioner as a life-long learning goal.

6. APPENDICES

Appendix A. Instructions for authors for Neuropsychological Rehabilitation

Neuropsychological Rehabilitation publishes human experimental and clinical research related to rehabilitation, recovery of function, and brain plasticity. The journal is aimed at clinicians who wish to inform their practice in the light of the latest scientific research; at researchers in neurorehabilitation; and finally at researchers in cognitive neuroscience and related fields interested in the mechanisms of recovery and rehabilitation. Papers on neuropsychological assessment will be considered, and special topic reviews (2500-5000 words) addressing specific key questions in rehabilitation, recovery and brain plasticity will also be welcomed. The latter will enter a fast-track refereeing process.

Instructions for authors

Thank you for choosing to submit your paper to us. These instructions will ensure we have everything required so your paper can move through peer review, production and publication smoothly. Please take the time to read them and follow the instructions as closely as possible.

Should you have any queries, please visit our Author Services website or contact us at authorqueries@tandf.co.uk.

This journal uses ScholarOne Manuscripts (previously Manuscript Central) to peer review manuscript submissions. Please read the guide for ScholarOne authors before making a submission. Complete guidelines for preparing and submitting your manuscript to this journal are provided below.

Use these instructions if you are preparing a manuscript to submit to *Neuropsychological Rehabilitation*. To explore our journals portfolio, visit http://www.tandfonline.com/, and for more author resources, visit our Author Services website.

Neuropsychological Rehabilitation considers all manuscripts on the strict condition that

- the manuscript is your own original work, and does not duplicate any other previously published work, including your own previously published work.
- the manuscript has been submitted only to *Neuropsychological Rehabilitation*; it is not under consideration or peer review or accepted for publication or in press or published elsewhere.
- the manuscript contains nothing that is abusive, defamatory, libellous, obscene, fraudulent, or illegal.

Please note that *Neuropsychological Rehabilitation* uses CrossCheck™ software to screen manuscripts for unoriginal material. By submitting your manuscript to *Neuropsychological Rehabilitation* you are agreeing to any necessary originality checks your manuscript may have to undergo during the peer-review and production processes.

Any author who fails to adhere to the above conditions will be charged with costs which *Neuropsychological Rehabilitation* incurs for their manuscript at the discretion of *Neuropsychological Rehabilitation*'s Editors and Taylor & Francis, and their manuscript will be rejected.

This journal is compliant with the Research Councils UK OA policy. Please see the licence options and embargo periods here.

Manuscript preparation

1. Journal-specific guidelines

- This journal accepts original (regular) articles, scholarly reviews, and book reviews.
- The style and format of the typescripts should conform to the specifications given in the Publication Manual of the American Psychological Association (6th ed.).
- There is no word limit for manuscripts submitted to this journal. Authors should include a word count with their manuscript.

2. General guidelines

- Manuscripts are accepted in English. Oxford English Dictionary spelling and punctuation are preferred. Please use double quotation marks, except where "a quotation is 'within' a quotation". Long quotations of words or more should be indented without quotation marks.
- Manuscripts should be compiled in the following order: title page; abstract; keywords; main text; acknowledgements; references; appendices (as appropriate); table(s) with caption(s) (on individual pages); figure caption(s) (as a list).
- Abstracts of 150-200 words are required for all manuscripts submitted.
- Each manuscript should have up to 5 keywords.
- Search engine optimization (SEO) is a means of making your article more visible to anyone who might be looking for it. Please consult our guidance here.
- Section headings should be concise.
- All authors of a manuscript should include their full names, affiliations, postal addresses, telephone numbers and email addresses on the cover page of the manuscript. One author should be identified as the corresponding author. Please give the affiliation where the research was conducted. If any of the named co-authors moves affiliation during the peer review process, the new affiliation can be given as a footnote. Please note that no changes to affiliation can be made after the manuscript is accepted. Please note that the email address of the corresponding author will normally be displayed in the article PDF (depending on the journal style) and the online article.
- All persons who have a reasonable claim to authorship must be named in the manuscript as co-authors; the corresponding author must be authorized by all co-authors to act as an agent on their behalf in all matters pertaining to publication of the manuscript, and the order of names should be agreed by all authors.
- Biographical notes on contributors are not required for this journal.
- Please supply all details required by any funding and grant-awarding bodies as an Acknowledgement on the title page of the manuscript, in a separate paragraph, as follows:

- *For single agency grants:* "This work was supported by the [Funding Agency] under Grant [number xxxx]."
- *For multiple agency grants:* "This work was supported by the [Funding Agency 1] under Grant [number xxxx]; [Funding Agency 2] under Grant [number xxxx]; and [Funding Agency 3] under Grant [number xxxx]."

- Authors must also incorporate a Disclosure Statement which will acknowledge any financial interest or benefit they have arising from the direct applications of their research.
- For all manuscripts non-discriminatory language is mandatory. Sexist or racist terms must not be used.
- Authors must adhere to SI units. Units are not italicised.
- When using a word which is or is asserted to be a proprietary term or trade mark, authors must use the symbol ® or TM.

3. Style guidelines

- Description of the Journal's reference style.
- Guide to using mathematical scripts and equations.
- Word templates are available for this journal. If you are not able to use the template via the links or if you have any other template queries, please contact authortemplate@tandf.co.uk.
- Authors must not embed equations or image files within their manuscript

Appendix B. Studies excluded at full-paper screening stage

Study	Exclusion basis	Justification
Bédard, Felteau, Gibbons, Klein, Mazmanian, Fedyk and Mack (2005)	Non-empirical research	One-year follow-up for Bédard et al.'s 2003 research. Non-empirical research therefore not included in the review. Interestingly, the improvements observed after the intervention (2003) were maintained at follow-up one-year later.
Hofer et al. (2014)	Intervention type	The intervention protocol is an integrative mix of neuro-rehabilitation, CBT and some Mindfulness. The aspects of Mindfulness were as a standalone element e.g. use of the body scan, rather than based on either MBCT or MBSR.
Johansson, Bjuhr and Rönnbäck (2015)	Intervention type	The paper describes an "advanced mindfulness program" following an MBSR program. As this advanced mindfulness intervention protocol is not based on either MBCT or MBSR, but is instead based on Brahma Viharas, it does not meet the inclusion criteria for intervention type.
Lundgren, Dahl and Hayes (2008)	Non-empirical research	Additional analysis for the 2006 study by Lundgren et al.
McHugh and Wood (2013)	Intervention type	Not an intervention-based study. Mindfulness induction use for experimental attention task.
McMillan, Robertson and Chorlton (2002)	Intervention type	The intervention protocol is not based on either MBCT or MBSR. Based on Attentional Control Training
Mills and Allen (2000)	Intervention type	The intervention protocol is not based on either MBCT or MBSR. Describes "mindfulness of movement".
Wells et al. (2015)	Participant type	The participants recruited had mild cognitive impairment that is associated with Alzheimer's. The review inclusion criteria specify working age adults and not older adults

Appendix C. Quality appraisal tool for non-randomised studies

NEWCASTLE - OTTAWA QUALITY ASSESSMENT SCALE CASE CONTROL STUDIES

Note: A study can be awarded a maximum of one star for each numbered item within the Selection and Exposure categories. A maximum of two stars can be given for Comparability.

Selection

1) Is the case definition adequate?
   a) yes, with independent validation ✵
   b) yes, eg record linkage or based on self reports
   c) no description

2) Representativeness of the cases
   a) consecutive or obviously representative series of cases ✵
   b) potential for selection biases or not stated

3) Selection of Controls
   a) community controls ✵
   b) hospital controls
   c) no description

4) Definition of Controls
   a) no history of disease (endpoint) ✵
   b) no description of source

Comparability

1) Comparability of cases and controls on the basis of the design or analysis
   a) study controls for _____ (Select the most important factor.) ✵
   b) study controls for any additional factor ✵ (This criteria could be modified to indicate specific control for a second important factor.)

Exposure

1) Ascertainment of exposure
   a) secure record (eg surgical records) ✵
   b) structured interview where blind to case/control status ✵
   c) interview not blinded to case/control status
   d) written self report or medical record only
   e) no description

2) Same method of ascertainment for cases and controls
   a) yes ✵
   b) no

3) Non-Response rate
   a) same rate for both groups ✵
   b) non respondents described
   c) rate different and no designation

NEWCASTLE - OTTAWA QUALITY ASSESSMENT SCALE
COHORT STUDIES

Note: A study can be awarded a maximum of one star for each numbered item within the Selection and Outcome categories. A maximum of two stars can be given for Comparability

Selection

1) Representativeness of the exposed cohort
   a) truly representative of the average _____ (describe) in the community ✵
   b) somewhat representative of the average _____ in the community ✵
   c) selected group of users eg nurses, volunteers
   d) no description of the derivation of the cohort

2) Selection of the non exposed cohort
   a) drawn from the same community as the exposed cohort ✵
   b) drawn from a different source
   c) no description of the derivation of the non exposed cohort

3) Ascertainment of exposure
   a) secure record (eg surgical records) ✵
   b) structured interview ✵
   c) written self report
   d) no description

4) Demonstration that outcome of interest was not present at start of study
   a) yes ✵
   b) no

Comparability

1) Comparability of cohorts on the basis of the design or analysis
   a) study controls for _____ (select the most important factor) ✵

   b) study controls for any additional factor ✵ (This criteria could be modified to indicate specific control for a second important factor.)

Outcome

1) Assessment of outcome
   a) independent blind assessment ✵
   b) record linkage ✵
   c) self report
   d) no description

2) Was follow-up long enough for outcomes to occur
   a) yes (select an adequate follow up period for outcome of interest) ✵
   b) no

3) Adequacy of follow up of cohorts
   a) complete follow up - all subjects accounted for ✵

b) subjects lost to follow up unlikely to introduce bias - small number lost - > ____ % (select an adequate %) follow up, or description provided of those lost) ✵
c) follow up rate < ____% (select an adequate %) and no description of those lost
d) no statement

Appendix D. Coding manuals for non-randomised studies

CODING MANUAL FOR CASE-CONTROL STUDIES

SELECTION

1) Is the Case Definition Adequate?

a) Requires some independent validation (e.g. >1 person/record/time/process to extract information, or reference to primary record source such as x-rays or medical/hospital records) ☆
b) Record linkage (e.g. ICD codes in database) or self-report with no reference to primary record
c) No description

2) Representativeness of the Cases

a) All eligible cases with outcome of interest over a defined period of time, all cases in a defined catchment area, all cases in a defined hospital or clinic, group of hospitals, health maintenance organisation, or an appropriate sample of those cases (e.g. random sample) ☆
b) Not satisfying requirements in part (a), or not stated.

3) Selection of Controls

This item assesses whether the control series used in the study is derived from the same population as the cases and essentially would have been cases had the outcome been present.

a) Community controls (i.e. same community as cases and would be cases if had outcome) ☆
b) Hospital controls, within same community as cases (i.e. not another city) but derived from a hospitalised population
c) No description

4) Definition of Controls

a) If cases are first occurrence of outcome, then it must explicitly state that controls have no history of this outcome. If cases have new (not necessarily first) occurrence of outcome, then controls with previous occurrences of outcome of interest should not be excluded. ☆
b) No mention of history of outcome

COMPARABILITY

1) Comparability of Cases and Controls on the Basis of the Design or Analysis

A maximum of 2 stars can be allotted in this category

Either cases and controls must be matched in the design and/or confounders must be adjusted for in the analysis. Statements of no differences between groups or

that differences were not statistically significant are not sufficient for establishing comparability. Note: If the odds ratio for the exposure of interest is adjusted for the confounders listed, then the groups will be considered to be comparable on each variable used in the adjustment.
There may be multiple ratings for this item for different categories of exposure (e.g. ever vs. never, current vs. previous or never)
Age =☆ , Other controlled factors = ☆

EXPOSURE

1) Ascertainment of Exposure

Allocation of stars as per rating sheet

2) Non-Response Rate

Allocation of stars as per rating sheet

CODING MANUAL FOR COHORT STUDIES

SELECTION

1) Representativeness of the Exposed Cohort

Item is assessing the representativeness of exposed individuals in the community, not the representativeness of the sample of women from some general population. For example, subjects derived from groups likely to contain middle class, better educated, health oriented women are likely to be representative of postmenopausal estrogen users while they are not representative of all women (e.g. members of a health maintenance organisation (HMO) will be a representative sample of estrogen users. While the HMO may have an under-representation of ethnic groups, the poor, and poorly educated, these excluded groups are not the predominant users of estrogen).

Allocation of stars as per rating sheet

2) Selection of the Non-Exposed Cohort

Allocation of stars as per rating sheet

3) Ascertainment of Exposure

Allocation of stars as per rating sheet

4) Demonstration That Outcome of Interest Was Not Present at Start of Study

In the case of mortality studies, outcome of interest is still the presence of a disease/ incident, rather than death. That is to say that a statement of no history of disease or incident earns a star.

COMPARABILITY

1) Comparability of Cohorts on the Basis of the Design or Analysis

A maximum of 2 stars can be allotted in this category
Either exposed and non-exposed individuals must be matched in the design and/or confounders must be adjusted for in the analysis. Statements of no differences between groups or that differences were not statistically significant are not sufficient for establishing comparability. Note: If the relative risk for the exposure of interest is adjusted for the confounders listed, then the groups will be considered to be comparable on each variable used in the adjustment.
There may be multiple ratings for this item for different categories of exposure (e.g. ever vs. never, current vs. previous or never)
Age = ☆ , Other controlled factors =☆

OUTCOME

1) Assessment of Outcome

For some outcomes (e.g. fractured hip), reference to the medical record is sufficient to satisfy the requirement for confirmation of the fracture. This would not be adequate for vertebral fracture outcomes where reference to x-rays would be required.

a) Independent or blind assessment stated in the paper, or confirmation of the outcome by reference to secure records (x-rays, medical records, etc.) ☆
b) Record linkage (e.g. identified through ICD codes on database records) ☆
c) Self-report (i.e. no reference to original medical records or x-rays to confirm the outcome)
d) No description.

2) Was Follow-Up Long Enough for Outcomes to Occur

An acceptable length of time should be decided before quality assessment begins (e.g. 5 yrs. for exposure to breast implants)

3) Adequacy of Follow Up of Cohorts

This item assesses the follow-up of the exposed and non-exposed cohorts to ensure that losses are not related to either the exposure or the outcome.

Allocation of stars as per rating sheet

Appendix E. Quality assessment of non-randomised studies

Study	Assessment scale	Selection (4-star max rating)	Comparability (2-star max rating)	Exposure / Outcome (3-star max rating)
Ashworth (2014) Total: 4 / 7 stars Moderate quality	Case study. Modified NOS cohort scale.	*** Somewhat representative of TBI. No control. Ascertainment of difficulties using neuropsychological assessment battery and medical notes. Measures collected prior to intervention.	n/a	* Assessment of outcome using validated measures. No follow-up.
Ashworth, Clarke, Jones, Jennings and Longworth (2015) Total: 6 / 7 stars High quality	Case series. Modified NOS cohort scale.	*** Representative of ABIs. No control group. Ascertained from medical records. Measures collected prior to intervention.	n/a	*** Assessment of outcome using validated measures. Three-month follow-up. 25% attrition accounted for
Ashworth, Gracey and Gilbert (2011) Total: 4 / 7 stars Moderate quality	Case study. Modified NOS cohort scale.	*** Somewhat representative of TBI. Ascertainment of TBI by comprehensive assessment and medical records. Measures collected prior to intervention.	n/a	* Assessment of outcome using validated measures. No follow-up.
Bédard, Felteau, Mazmantan, Fedyk, Klein, Richardson, Parkinson and Minthorn-Biggs (2003) Total: 4 / 9 stars Moderate quality	Case series with control group. Modified NOS case-control scale	*** Not representative of TBI. Independent validation of cases. Community controls – drop-outs from intervention. Measures collected prior to intervention.	*No stars* Reports no difference between case and control groups, but not controlled for.	* Assessment of outcome using validated measures for both cases and controls. No follow-up. Drop-outs used as controls.
Dewhurst, Novakova and Reuver (2015) Total: 5 / 7 stars Moderate quality	Case series. No control group. Modified NOS cohort scale.	*** Representative sample. No control group. Ascertainment of difficulties using medical notes. Measures collected prior to intervention.	n/a	** Assessment of outcome using validated measures. Six-month follow-up. Attrition not accounted for.

Gillanders and Gillanders (2014) Total: 4 / 7 stars Moderate quality	Case study. Modified NOS cohort scale.	*** Somewhat representative. No control. Ascertainment using medical notes. Measures collected prior to intervention.	n/a	* Assessment of outcome using validated measures. No follow-up.
Graham, Gillanders, Stuart and Gouick (2015) Total: 4 / 7 stars Moderate quality	Case study. Modified NOS cohort scale.	*** Somewhat representative. Ascertainment of difficulties using neuropsychological tests, medical notes and questionnaires. Measures collected prior to intervention	n/a	* Assessment of outcome using validated measures.
Joo, Lee, Chung and Shin (2010) Total: 4 / 7 stars Moderate quality	Case series. No control group. Modified NOS cohort scale	*** Somewhat representative sample. No control group. Ascertainment using medical notes. Measures collected prior to intervention	n/a	* Assessment of outcome using validated measures. No follow-up. Attrition not accounted for.
Kangas, McDonald, Williams & Smee (2015) Total: 5 / 7 stars Moderate quality	Case series. No control group. Modified NOS cohort scale.	*** Somewhat representative sample. No control group. Ascertainment of difficulties using medical notes and SCID-DSM. Measures collected prior to intervention	n/a	** Assessment of outcome using validated measures. Three-month follow-up. Attrition (25%) not accounted for.
O'Neill and McMillan (2012) Total: 7 / 9 stars High quality	Experimental design. Two groups. Modified NOS case-control scale.	**** Case definition using medical notes and neuropsychological assessment. Representative cases. Community controls. Measures collected prior to intervention	** Comparability of groups. Study controls for age and time since brain injury.	* Assessment of outcome using validated measures. No follow-up.
Sheppard, Forsyth, Hickling and Bianchi (2010) Total: 5 / 7 stars Moderate quality	Case series. No control group. Modified NOS cohort scale	** Somewhat representative sample. Clinic and advertisement referrals – inadequate case definition? Measures collected prior to intervention	n/a	*** Assessment of outcome using validated measures. Three=month follow-up. Attrition accounted for.
Shields and Ownsworth (2013)	Case study. Modified NOS cohort scale.	*** Somewhat representative, Ascertainment of difficulties using	n/a	** Assessment of outcome using validated measures.

Total: 5 / 7 stars Moderate quality		neuropsychological assessment battery, medical notes and SCID-I. Measured collected prior to intervention.		Three-month follow-up.

Appendix F. Risk of bias assessment for RCTs

Study	Risk of bias judgement (low, high or unclear)	Support for judgement
Bédard, Lefteau, Marshall, Cullen, Gibbons, Dubois, Maxwell, Mazmanian, Weaver, Rees, Gainer, Klein, and Moustgaard (2015) Overall risk of bias: unclear	*Random sequence generation:* low	Participants were randomized 1:1 to treatment or control groups. Minimization was used to ensure balance between groups on symptoms of depression
	Allocation concealment: low	The randomization process was completed by a statistician, independently of the clinicians and site investigators.
	Blinding of participants and personnel: unclear	Not described.
	Blinding of outcome assessment: unclear	No description of blinding during analysis given.
	Incomplete outcome data: unclear	A priori decision between an "intent-to-treat" approach or a "per protocol" approach. Instead, a complete case analysis that included all participants who provided outcome data regardless of their attendance to the weekly sessions.
	Selective reporting: low	All pre-specified outcomes were reported.
	Other bias: unclear	Participants self-selected into study. 5 were assigned to the intervention without randomisation.
Grossman, Kappos, Gensicke, D'Souza, Mohr, Penner and Steiner (2010) Overall risk of bias: low.	*Random sequence generation:* low	A random-event generator (www.randomizer.org) was employed, using blocks of 4–6
	Allocation concealment: low	Randomisation conducted by personnel who had no previous contact with the participants and no identifiable information other than assignment number.
	Blinding of participants and personnel: unclear	Participants notified in writing of their assignment.
	Blinding of outcome assessment: low	All patient-reported outcome (PRO) measures were entered into a database by personnel blinded to group assignment.
	Incomplete outcome data; low	Attrition (5%) accounted for, Intention-to-treat analyses are reported. Data of missing study patients were imputed by linear multiple regression that adjusted for age, gender, and disease progression (entry EDSS score; STATISTICA 6.0).
	Selective reporting: low	All pre-specified outcomes were reported.
	Other bias: low	Adequate power achieved.

Johansson, Bjuhr & Rönnbäck (2012) Overall risk of bias: unclear	*Random sequence generation:* unclear *Allocation concealment:* unclear *Blinding of participants and personnel:* unclear *Blinding of outcome assessment:* unclear *Incomplete outcome data:* unclear *Selective reporting:* low *Other bias:* unclear	Paper reports "participants were randomized, either to the MBSR group 1 or to the control group" but no further description given. No description given. No description given, No description of blinding during analysis given Attrition described but how the analysis was conducted and how missing data was treated is not described. All pre-specified outcomes were reported. Small number of participants and impact on power not adequately discussed.
Lundgren, Dahl, Yardi and Melin (2008) Overall risk of bias: unclear	*Random sequence generation:* unclear *Allocation concealment:* unclear *Blinding of participants and personnel:* unclear *Blinding of outcome assessment:* unclear *Incomplete outcome data:* low *Selective reporting:* low *Other bias*	The protocol specifies that "participants were assigned to either ACT or yoga treatment using a computerized randomization table". Further description warranted. No description given. No description given. No description of blinding during analysis given. No attrition or exclusions from the analysis were reported. All pre-specified outcomes were reported.
Lundgren, Dahl, Melin and Kiess (2006) Overall risk of bias: high	*Random sequence generation:* unclear *Allocation concealment:* unclear *Blinding of participants and personnel:* unclear *Blinding of outcome assessment:* unclear *Incomplete outcome data:* high	Used a computerized randomization table. No further description given. No description given. The first and second authors were responsible for the content of both treatment conditions. No description of blinding during analysis given. One of the participants in the Supportive Therapy condition was excluded in the analysis of seizure frequency because of a value around five times bigger than the second

		largest value. How the data was treated is not further discussed. No other attrition reported.
	Selective reporting: low	All pre-specified outcomes were reported.
	Other bias	
Nordin and Rorsman (2012) Overall risk of bias: unclear	*Random sequence generation:* unclear	"Patients were randomly assigned by an independent co-worker to one of two treatment groups following pairwise matching based on EDSS, anxiety, and depression scores."
	Allocation concealment: unclear	No reported concealment of allocation.
	Blinding of participants and personnel: unclear	Interventions described by the authors of the paper (treating clinicians) to participants.
	Blinding of outcome assessment: low	Scoring and data analyses were conducted blindly
	Incomplete outcome data: low	Losses to treatment were disclosed. All treatment effect analyses were by intention-to-treat. For participants who dropped out, scores from the previous assessment were carried forward.
	Selective reporting: low	All pre-specified outcomes were reported.
	Other bias: unclear	Absence of an independent treatment evaluation to ensure treatment integrity. Small number of participants and no discussion of power for undertaken analyses.
Pickut et al. (2015) Overall risk of bias: high	*Random sequence generation:* unclear	The paper reports "randomization was conducted by a blinded investigator" but no further information given.
	Allocation concealment: unclear	No description given.
	Blinding of participants and personnel: unclear	No description given.
	Blinding of outcome assessment: low	All participant-reported outcome measures were entered into a database by personnel blinded to group assignment. All investigator rated scales were administered by a blinded assessor.
	Incomplete outcome data: high	Attrition (10%) not adequately described. Intention-to-treat analysis was not employed. Missing data not accounted for.
	Selective reporting: low	All pre-specified outcomes were reported.
	Other bias: unclear	Follow-up at 8-weeks post-intervention is not likely to be long enough as a follow-up to ascertain sustained changes or to be considered as a longitudinal design as suggested by the authors.

Appendix G. Instructions to authors for Psychological Trauma: Theory, Research, Practice and Policy

Prior to submission, please carefully read and follow the submission guidelines detailed below. Manuscripts that do not conform to the submission guidelines may be returned without review.

Submission

Submit manuscripts electronically through the Manuscript Submission Portal (.doc or .docx files).

Authors must indicate in their cover letter whether they prefer masked or unmasked peer review. If anonymous review is requested, all author's names, their affiliations, and contact information will be removed by the manuscript coordinator.

In addition to addresses and phone numbers, please supply email addresses and fax numbers for use by the editorial office and later by the production office. Most correspondence between the editorial office and authors is handled by email, so a valid email address is important to the timely flow of communication during the editorial process.

Keep a copy of the manuscript to guard against loss.

Length

Manuscripts for *Psychological Trauma: Theory, Research, Practice, and Policy* can vary in length, but may not exceed 28 double-spaced manuscript pages (including title page, abstract, manuscript body, references, and tables/figures.) Manuscripts that exceed this length may be returned without review. Authors do have the option of electronically archiving supplemental material, such as tables and figures, in order to assist them in keeping their articles to the required length. (See below.)

While *Psychological Trauma* primarily publishes original empirical studies, we are also open to reviewing high quality literature reviews and clinical, qualitative, theoretical and policy articles.

Manuscript Preparation

Prepare manuscripts according to the *Publication Manual of the American Psychological Association* (6th edition). Manuscripts may be copyedited for bias-free language (see Chapter 3 of the *Publication Manual*).

Review APA's Checklist for Manuscript Submission before submitting your article.

Double-space all copy. Other formatting instructions, as well as instructions on preparing tables, figures, references, metrics, and abstracts, appear in the *Manual*.

If your manuscript was mask reviewed, please ensure that the final version for production includes a byline and full author note for typesetting.

Below are additional instructions regarding the preparation of tables.

Tables

Use Word's Insert Table function when you create tables. Using spaces or tabs in your table will create problems when the table is typeset and may result in errors.

Brief reports

Brief reports are articles that do not exceed 12 pages including the cover page, abstract, tables, figures, and references. A brief report is appropriate when there are preliminary findings, or findings from a small sample size, that may not be appropriate for a full research report.

Submitting Supplemental Materials

APA can place supplemental materials online, available via the published article in the PsycARTICLES® database. Please see Supplementing Your Article With Online Material for more details.

Abstract and Keywords

All manuscripts must include a structured abstract divided into the following sections, with headings: Objective, Method, Results, and Conclusions. The Objective should clearly communicate the novel contribution of the manuscript. In the Conclusion, please identify at least one specific implication and avoid boilerplate language such as 'Implications will be discussed.'

The abstract should be no longer than 250 words and should be followed by five keywords, or brief phrases.

References

List references in alphabetical order. Each listed reference should be cited in text, and each text citation should be listed in the References section.

Examples of basic reference formats:

- **Journal Article:**
  Hughes, G., Desantis, A., & Waszak, F. (2013). Mechanisms of intentional binding and sensory attenuation: The role of temporal prediction, temporal control, identity prediction, and motor prediction. *Psychological Bulletin, 139,* 133–151. http://dx.doi.org/10.1037/a0028566
- **Authored Book:**
  Rogers, T. T., & McClelland, J. L. (2004). *Semantic cognition: A parallel distributed processing approach.* Cambridge, MA: MIT Press.
- **Chapter in an Edited Book:**
  Gill, M. J., & Sypher, B. D. (2009). Workplace incivility and organizational trust. In P. Lutgen-Sandvik & B. D. Sypher (Eds.), *Destructive organizational communication: Processes, consequences, and constructive ways of organizing* (pp. 53–73). New York, NY: Taylor & Francis.

Appendix H. SIP approval letter from Trust R&D

Avon and Wiltshire NHS
Mental Health Partnership NHS Trust

Avon and Wiltshire Mental Health Partnership AWP Trust
AWP Quality Academy
Blackberry Centre
Manor Road
Fishponds
BS16 2EW

0117 378 4238/ 07825 725296

Paula Robinson
Clinical Psychologist in Training

Date: 27th October 2014

Dear Paula

Evaluation title: Can training improve the confidence and skills of inpatient staff in working with complex PTSD

AWP Reference: 2014.E019

This letter is to confirm that your evaluation is approved based upon the completed amendments requested by email today and also provides you with our reference number.

If you do need any further support or information, please contact us using the contact details above, quoting our reference number for your study.

The importance of disseminating all evaluation work cannot be over emphasised. It is only by sharing our learning that we can improve services across AWP. For this reason, the findings of all evaluation work should be reported to the Evaluation team via email. The team will champion the results of service evaluations, and work with evaluators to ensure those results are disseminated and acted upon, and that the results of evaluations are reflected in future service delivery. The team will also work with evaluators to produce publications for the public domain.

I very much look forward to receiving the results of your evaluation in due course.

Yours sincerely,

Janet Brandling

Appendix I. Staff information sheet

Avon and Wiltshire NHS
Mental Health Partnership NHS Trust

Can training improve the confidence and skills of inpatient staff in working with Complex PTSD?

We are looking for a number of staff members to participate in a discussion group and subsequent training about trauma. Before you decide whether you want to take part, it is important for you to understand why the evaluation is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for taking the time to read it.

What is the purpose of this study?

Complex trauma describes difficulties associated with prolonged and repeated physical abuse, sexual abuse or neglect; with childhood abuse that occurs over an extended time period being one such example. There is a known association between complex trauma and presentations such as Borderline Personality Disorder and Psychosis. Both of these presentations are prevalent in inpatient settings, due to individuals often being admitted in acute crisis. As such, inpatient staff work closely with those individuals who are most like to have complex trauma presentations.

Over the past decade there has been a movement within services to identify patients who have had traumatic experiences and offer them the opportunity to work therapeutically to understand and overcome the trauma and associated mental ill health symptoms. However, around 50% of patients who have experienced trauma wait around 10 years before disclosing it and over a quarter do not spontaneously disclose. As such it has become the responsibility of the clinician working with the patient to ask about trauma where it is suspected, to support them in openly discussing their experiences.

The purpose of this study is to work with staff in an inpatient team and ask them about their experiences of working with clients who have experienced traumatic events that may be affecting their presentation of symptoms. It seeks to explore whether currently, trauma is commonly asked about and treatment offered and if not what people think are the barriers to them asking.

Responses are really important as they will inform the training program and support the development of skills to assess for and offer treatment for trauma to help provide an even more effective service to support clients who have experienced trauma.

What will be asked of me if I take part?

1) A number of staff members will attend a group meeting where we can all discuss
    - The impact of trauma,

- Any benefits of offering a service that assesses for and treats it
- Any disadvantages of offering this service
- Confidence and concerns over offering this service
- What the barriers are to offering this service at present
- What could help to overcome these barriers

This discussion may last up to half an hour and will be audio-recorded by the main facilitator. Responses on the recording will be anonymous and kept confidential. The tape will be destroyed after the training has been devised.

2) Staff members will then be invited to attend an interactive training session with the facilitator. The duration of the training will be agreed at the discussion group but will last no longer than three hours. The training will be based on the needs identified in the meeting and will involve a PowerPoint presentation, interactive discussion and group exercises to practice techniques. You will be asked to complete an evaluative questionnaire before and after the training to evaluate what you feel has been helpful/useful about the training. The estimated time to complete the questionnaires is 10 minutes per questionnaire.
3) Around 3 to 6 months after the training you will be invited to complete a follow-up questionnaire to consider whether anything has changed and whether there has been an opportunity to implement the training. It will also provide an opportunity to highlight things that have been difficult/not gone smoothly which can be addressed in the future.

Are there any risks to taking part?

At no time during this study will you be asked to talk about any personal experiences. However, trauma can be a distressing topic so it is possible that discussing it can bring up difficult emotions or past experiences. If this happens you are welcome to leave the study and withdraw your information at any time. The facilitators involved within the study will also be happy to spend time talking with you to help you identify what has been difficult and, if necessary, helping you to find appropriate support services.

Are there any benefits to taking part?

The benefits of taking part may include:

- Having the opportunity to shape the training you receive to meet your needs
- Feeling more confident and knowledgeable in asking about trauma
- Feeling more confident and knowledgeable in knowing how to manage distressed clients with presentations associated with a history of trauma
- Developing additional skills that can help you to work with clients who understandably find it hard to trust others

Will my responses in the meeting be kept confidential?

At no time will you be asked to disclose personal information but will be supported to do so if you wish to. All information which is provided by you during the course of the discussion group and training will be kept strictly confidential. Any information you have provided will be linked to your participant number only and not your name or any other identifiable information. The recorded session will be deleted immediately after the training has been devised.

What happens to my responses after the study?
Responses and questionnaires will be retained in a locked department within the university linked only to participant numbers for a maximum of 10 years after the study in accordance with the 1998 Data Protection Act. During this time you can withdraw from the study and request your responses. After this time all paper information will be shredded and only anonymous numerical data will be retained until the submission of the study to the university.

What happens to the results of the study?
Results of the first meeting will be used to inform the training. All subsequent results will be written up in a generalised, anonymous summary and given to all members who participated in the evaluation. It is also planned that the study will be written up and submitted to an academic journal for peer review and publication.

Who can I contact if I have questions?
The main facilitator should be the first point of call:
Email Paula Robinson on pr362@bath.ac.uk

The second facilitator can also be contacted:
Email Chris Gilmore on Chris.Gillmore@nhs.net

The Academic supervisor can also be contacted to discuss the project:
Email Falguni Nathwani on fn256@bath.ac.uk

Appendix J. Staff consent form

Participant Identification Number: _____

CONSENT FORM

Title of Project: Can training improve the confidence and skills of inpatient staff in working with Complex PTSD?

Name of Researchers: Paula Robinson, University of Bath
Dr Chris Gillmore, NHS House, Bath
Dr Falguni Nathwani, University of Bath

Please tick box

1. I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask questions. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason. ☐
3. I give permission for the information I provide to be stored securely at the University of Bath for the duration of 10 years after the study is completed. ☐
4. I agree to the researcher using information the provided to be reported as a study and I understand that all data written or otherwise will be made anonymous. ☐
5. I give consent for my participation in the focus group to be audio recorded and I understand that the data will be transcribed in an anonymised fashion and then audio recorded data will be immediately deleted. ☐
6. I understand that to evaluate the results, data collected during the study may be looked at by researchers from The University of Bath. Such monitoring would only be carried out by individuals who have a duty of confidentiality. I give permission for these individuals to have access to my anonymous data in the unlikely event that this is required. ☐
7. I agree to take part in the above study. ☐

_____	_____	_____
Name of Participant	Date	Signature
_____	_____	_____
Researcher	Date	Signature

Appendix K. Schedule for focus group

Opening: 5 mins

- This meeting will be pitched as a 'Training Planning Meeting'.
- Introductions.
- It will be an interactive informal session designed to elicit conversation between the main researcher and the staff team. It is proposed that it will last 30 to 40 mins. Two focus groups will be held to increase staff access.
- Staff will be informed of the need to audio record the content of discussion for transcription purposes in advance of the focus group. They will also be provided with an information form and consent form in advance and asked to bring this with them to the focus group if they consent to participate.
- During the focus group, staff members will have an opportunity to discuss the project with the researcher. They will be informed that the focus group is an opportunity for them to think about, and discuss, complex post-traumatic stress presentations within their service. It will also be an opportunity to advise the researcher of any areas of interest they have in relation to the topic as well as strengths, weaknesses and areas for improvement. They will be assured that there are no right or wrong answers and that their feedback will not be assessed in any way but is of great importance to ensure that the training they receive meets their needs.

Discussion: 25 mins

To open the discussion, the following questions will be posed to staff members:

a) What kinds of experiences might patients have that lead us to think about trauma?
b) What impact of trauma do you see in some of your patients?
c) Do you currently ask patients about trauma routinely when they are admitted to the ward?
d) How do you currently support patients who have confirmed trauma experiences?
e) Do you have any worries about working with trauma?
f) What do you feel would help to alleviate these worries?
g) What would you like the training to cover? Prompt - in other teams the training has covered areas such as: understanding complex trauma, learning to recognise it, how to ask about it and ways of managing distress. What aspects of this would be helpful/unhelpful for your team?
h) What structure would you like the training to take, i.e. PowerPoint, interactive, role play, case presentation? Would you prefer more focus on theory or practical application or equal amounts of both?

Summary: 10 mins

- At the end of the session the researcher will summarise the topics covered with particular emphasis on identified needs and requests for the content and structure of the training package. The researcher will check that they have correctly understood these main points and ask if there are any additional questions that staff members want to ask.

- Staff members will then be asked to complete the pre-training questionnaire.
- Following this the researcher will describe the next stages including transcribing and analysing the data in an anonymised fashion and how it will be used to alter and improve the training package to specifically meet the needs of their team.
- A reminder of the date of the training will be given. They will be advised that a final stage of the project will involve completing a questionnaire 3 to 6 months after training to measure any change and highlight existing needs.
- Staff members will be reminded that they can contact the researcher to discuss the project in further detail at any time should they wish to.

Appendix L. Example questionnaire

Avon and Wiltshire NHS
Mental Health Partnership NHS Trust

Participant Identification Number: _____

Pre Training Questionnaire

This questionnaire is being used to evaluate the effectiveness of the training session about working with clients who had had traumatic experiences (characterised by physical abuse, sexual abuse and neglect).

The training has been developed in response to staff feedback and its aim is to provide tools and support to assist the ward team in asking about and working with traumatic experiences.

To assess base-line perceptions of this area and support evaluation of the training, please could you take the time to read and complete the following questions. Please answer as honestly as possible. Thank you.

To your knowledge, approximately how many clients on the ward in the last month have a history of trauma?

❍ 0-5 ❍ 6-10 ❍ 11-15 ❍ 16-20 ❍ Over 20 ❍ Don't know

To your knowledge, approximately how many clients on the ward in the last month have you enquired about traumatic experiences?

❍ 0-5 ❍ 6-10 ❍ 11-15 ❍ 16-20 ❍ Over 20 ❍ Don't know

Please indicate your impressions of your knowledge and confidence of the following items:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. I know about links between trauma and presentations such as Personality Disorder and Psychosis	❍	❍	❍	❍	❍
2. I would know how to recognise signs of trauma in a client	❍	❍	❍	❍	❍
3. If I suspected trauma may be linked to a client's symptoms I would know how to ask about it	❍	❍	❍	❍	❍

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
4. If a client's referral indicated trauma at admission I would feel confident to ask about it	❍	❍	❍	❍	❍
5. I am confident that I could identify a complex trauma presentation in clients on the ward	❍	❍	❍	❍	❍
6. I often feel anxious to ask about trauma in case I upset the client	❍	❍	❍	❍	❍
7. I am worried about asking about trauma in case I can't deal with it	❍	❍	❍	❍	❍
8. Feeling traumatised myself by the traumatic experiences worries me	❍	❍	❍	❍	❍
9. I worry about opening up a can of worms and not knowing how to contain it	❍	❍	❍	❍	❍
10. I worry I could make someone worse by asking about their trauma experiences.	❍	❍	❍	❍	❍
11. My worries stop me asking about trauma	❍	❍	❍	❍	❍
12. If a client disclosed a traumatic experience I would feel confident to offer them skills / grounding work	❍	❍	❍	❍	❍
13. I worry if I started skills / grounding work I would not know enough to complete it	❍	❍	❍	❍	❍
14. I feel confident that I could manage ending grounding work	❍	❍	❍	❍	❍
15. I'm unsure my service would support me to work with trauma clients	❍	❍	❍	❍	❍

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
16. I'm unsure that I would have enough support or supervision to work with trauma clients	❍	❍	❍	❍	❍
17. If I started skills / grounding work, I would worry I would not have enough time to complete it	❍	❍	❍	❍	❍

18. Overall how confident do you feel to ask about trauma?

Extremely	Very	Neutral	Not Very	Not at all
❍	❍	❍	❍	❍

19. Overall how confident do you feel to carry out skills-based work with trauma clients?

Extremely	Very	Neutral	Not Very	Not at all
❍	❍	❍	❍	❍

20. Overall how confident do you feel about recognising trauma as the primary problem and referring to another service for treatment after discharge from the ward?

Extremely	Very	Neutral	Not Very	Not at all
❍	❍	❍	❍	❍

21. What are your personal barriers to asking about trauma with clients?

_____
_____
_____
_____
_____

22. What would help you to feel more confident in this area of work?

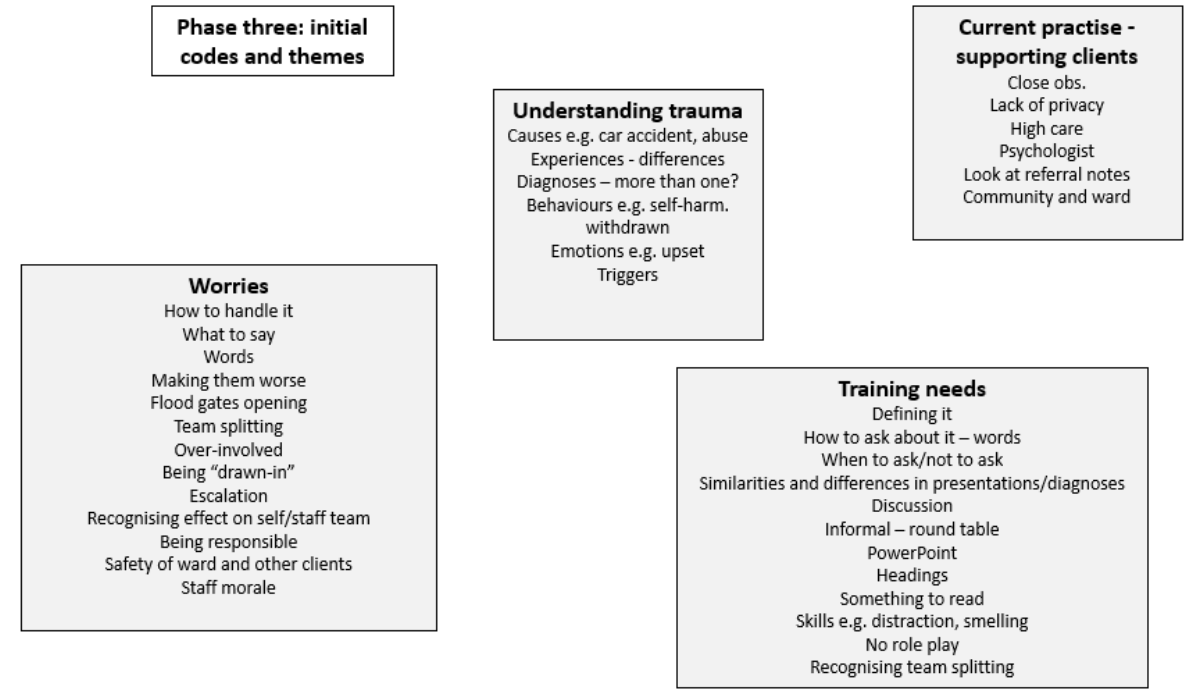
_____
_____
_____
_____
_____

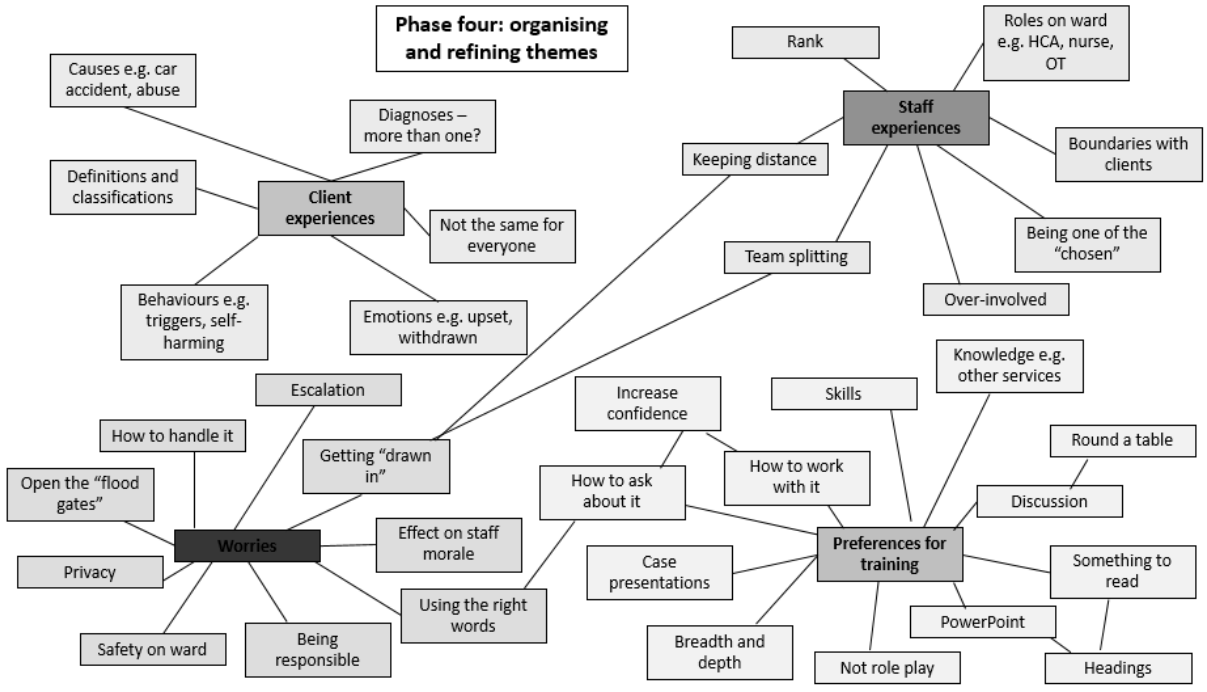
23. Any other comments?

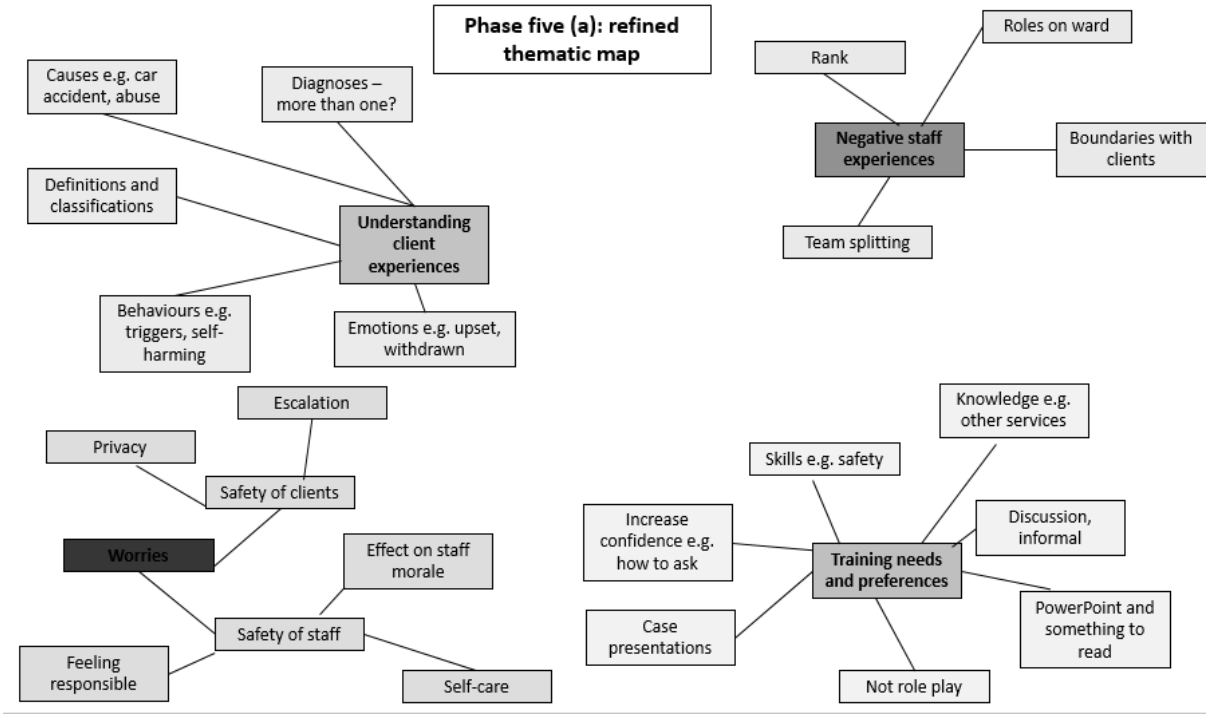
_____
_____
_____
_____
_____

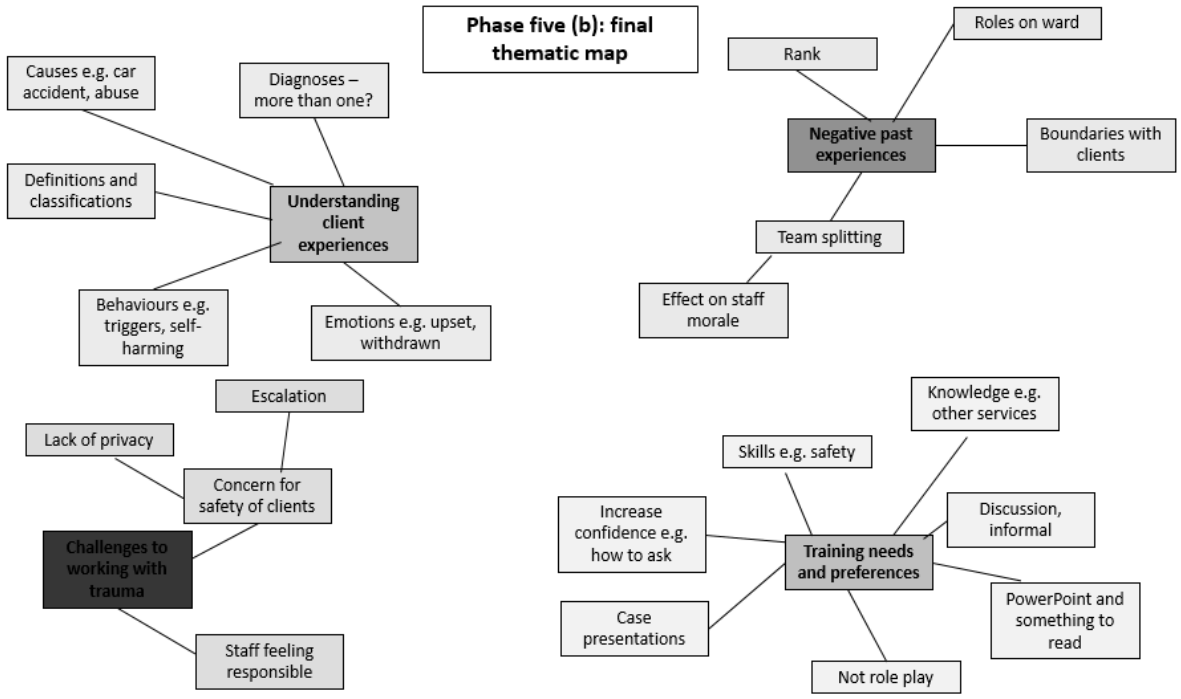
THANK YOU VERY MUCH FOR YOUR PARTICIPATION!

Appendix M. Thematic analysis and maps






Phase five (a): refined thematic map
Causes e.g. car accident, abuse
Diagnoses – more than one?
Definitions and classifications
Understanding client experiences
Behaviours e.g. triggers, self-harming
Emotions e.g. upset, withdrawn
Rank
Roles on ward
Negative staff experiences
Boundaries with clients
Team splitting
Escalation
Privacy
Safety of clients
Worries
Effect on staff morale
Safety of staff
Feeling responsible
Self-care
Knowledge e.g. other services
Skills e.g. safety
Increase confidence e.g. how to ask
Discussion, informal
Training needs and preferences
PowerPoint and something to read
Case presentations
Not role play


Phase five (b): final thematic map
Causes e.g. car accident, abuse
Diagnoses – more than one?
Definitions and classifications
Understanding client experiences
Behaviours e.g. triggers, self-harming
Emotions e.g. upset, withdrawn
Rank
Roles on ward
Negative past experiences
Boundaries with clients
Team splitting
Effect on staff morale
Escalation
Lack of privacy
Concern for safety of clients
Challenges to working with trauma
Staff feeling responsible
Knowledge e.g. other services
Skills e.g. safety
Increase confidence e.g. how to ask
Discussion, informal
Training needs and preferences
PowerPoint and something to read
Case presentations
Not role play

Appendix N. SIP summary for service

Service Improvement Project – Summary for Service

Can training improve the confidence and skills of inpatient staff in working with Complex PTSD?

Background Information

Complex trauma

People with complex trauma will have most likely experienced multiple traumatic events in their life, for example, prolonged and repeated physical abuse, sexual abuse or neglect; with childhood abuse that occurs over an extended time period being one such example. There is a known association between complex trauma and presentations such as Borderline Personality Disorder and Psychosis. Both of these presentations are prevalent in inpatient settings, due to individuals often being admitted in acute crisis, and research studies show that experiences of trauma and adversity are very common in patients with severe mental health problems.

It has been suggested that a phase-based approach be used in the treatment of complex trauma. An initial period of stabilisation is advocated. Aspects of it can be delivered by any clinical staff member, such as enabling a client to attend to their safety; supporting the client in regulating their emotions and to develop grounding skills to cope with flashbacks and dissociative experiences.

Asking about abusive experiences

The UK Department of Health published a briefing paper on Implementing National Policy on Violence and Abuse (2008) that acknowledges the links between violence, abuse and mental health diagnoses. It makes recommendations for staff to be trained in routinely and consistently asking all patients about abuse at first contact and at subsequent assessments.

Many professionals do not routinely ask about abuse. Barriers to asking includes; concerns about distressing clients; fear of vicarious traumatisation; fear of inducing "false memories"; more immediate concerns; the client having a diagnosis of psychosis and the clinician has a strong belief in biogenetic causal factors; and lack of training in how to ask and respond.

Inpatient staff training

The improvement of adult inpatient care has been highlighted as a policy priority (Department of Health (DoH), 1999; 2002). The need for staff training continues to be on the agenda in policy development, with particular attention paid to registered nursing staff and healthcare assistant in adult inpatient wards (NICE, 2014).

Aims

With the above in mind, the aims of the project were to:

1. identify the needs of inpatient staff in working with complex-trauma, by meeting with the ward manager and by holding focus groups with staff to ascertain their collective training needs
2. to provide bespoke training that meets these needs and to evaluate the outcome

Method

Two focus groups were held with staff. These were called "training planning meetings". At these sessions, staff were asked about their current understanding and knowledge about complex trauma, and any worries about asking about trauma. The identified themes were used to develop the subsequent training.

A self-report questionnaire was used to assess confidence, knowledge and worries. Staff were asked to complete the questionnaire before training (pre-training), immediately after training (post-training) and three months later (follow-up). A higher score indicates a greater amount of confidence, knowledge or worries.

Results

Overall, 21 staff members completed pre-training questionnaires, 13 completed post-training questionnaires and seven staff completed questionnaires at the three-month follow-up. The questionnaire data indicates that staff confidence and knowledge about working with complex trauma increased following the training session and worries about working with complex trauma decreased.

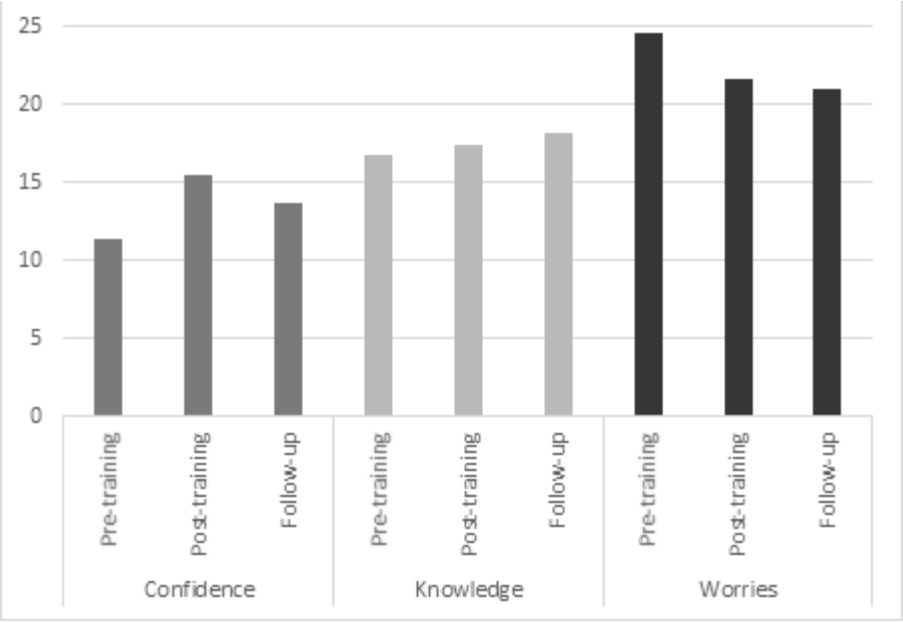


Figure 1. The effect of staff training on staff confidence, knowledge and worries.

Table 1. Number of participants (N) with descriptive statistics for confidence, knowledge and worries.

Measure	**Pre-training**	**Post-training**	**Follow-up**
	N=21	N=13	N=7
	M (SD)	M (SD)	M (SD)
Confidence	11.4 (2.4)	15.5 (2.6)	13.7 (2.9)
Knowledge	16.8 (3.3)	17.4 (1.8)	18.1 (1.7)
Worries	24.6 (4.1)	21.6 (7.1)	21.0 (6.5)

Note: mean = M; standard deviation = SD

Discussion

By dedicating time to planning with the team manager, service needs and barriers could be identified and circumvented, such as safe staffing levels and taking account of rota patterns for optimal attendance. Equally, staff needs and barriers could be identified through holding the focus groups, and training developed accordingly. The resulting tailor-made training program appeared to address these needs and barriers, by promoting discussion and providing materials to facilitate understanding and skills. The questionnaire data indicates that staff confidence and knowledge about working with complex trauma increased following the training session and worries about working with complex trauma decreased.

While an overall increase in confidence and knowledge and a decrease in worry was also found at three-month follow-up, the substantive and statistically significant change occurred between pre-and post-training.

Recommendations to the service

To fully sustain change at follow-up, greater consideration of the barriers to implementation could be embedded within the training by using a relapse-prevention design. This may promote the transfer of training through the heightened awareness of likely barriers and using group problem-solving to negotiate these barriers.

The provision of a resource pack to centralise resources and aid training implementation into current practice would be advantageous. Research indicates written material to be most effective when developed in partnership with the key stakeholders.

Designating a "change champion" for promoting complex trauma awareness on the ward would be beneficial in the continual development of the ward as a trauma-informed service. Change champions aim to generate "buy-in" to new practises, through demonstrating commitment to the idea. While the ward manager is currently acting in the role of a managerial change champion, the additional involvement of a

clinical change champion has been highlighted as being most effective. It has been demonstrated that this is particularly useful when seeking to appeal to doctors, who were absent from the present training.

As not all staff members were able to attend the training, the provision of further training is warranted. If the ward manager is able to keep a central record of staff attendance, then those staff who could not attend can be prioritised at the following training session that is offered. For subsequent training, the advance planning of staff shifts with the team manager and promotion of training through posters would again be helpful to occur.

The attendance of senior staff to the training was helpful in setting an example as managerial change champions and is likely to have conveyed the importance of complex trauma awareness and training. A potential limitation is that the differences in levels of knowledge and years of experiences in the group training may have promoted some reticence from the junior members of the team in contributing as fully to the discussion. Separate sessions based on experience levels may help to mitigate this, for example, an introductory session for less experienced staff members and a "top-up" session for more experienced staff members.

Acknowledgements

Thank you to Chris Gillmore, Kathy Bond and the staff of Sycamore Ward for their help and participation in this project.

References

Department of Health (1999). *National service framework for mental health: Modern standards and service models*. London, UK: Her Majesty's Stationary Office.

Department of Health (2002). *Mental health policy implementation guide: adult acute inpatient care provision*. London, UK: Her Majesty's Stationary Office.

National Institute for Clinical Excellence. (2014). Safe staffing for nursing in adult inpatient wards in acute hospitals (Staff Guideline 1). Retrieved from https://www.nice.org.uk/guidance/sg1

Appendix O. Feedback meeting questions to elicit discussion

Before training

- Before we ran the training, what were your hopes and expectations for the training?
- In your opinion, did the training deliver what you wanted for the ward?

After training

- Since we ran the training in February, have you noticed any changes in staff awareness of complex trauma issues?
- Since we ran the training in February, have you noticed any changes in staff practise regarding working with complex trauma?

Recommendations

- Do these feel like acceptable recommendations for the ward?
- Can you see yourself and your team being able to implement some of these changes?
- What might your next steps be?

Appendix P. SIP lay summary

Introduction: People with complex trauma will have most likely experienced multiple traumatic events in their life, for example, prolonged and repeated physical abuse, sexual abuse or neglect. Research studies show that experiences of trauma and adversity are very common in patients with severe mental health problems, who are most likely to be admitted to an inpatient unit in crisis. Unfortunately, many professionals do not routinely ask about abuse, due to a lack of training in how to ask and respond. Guidance for treatment is also limited.

Aims: The aims of the project were to: 1) identify the needs of inpatient staff in working with complex-trauma, by meeting with the ward manager and by holding focus groups with staff; 2) and to provide bespoke training that meets these needs, and to evaluate the outcome.

Method: Two focus groups were organised, to develop a training program which was delivered to the staff team. A questionnaire was administered pre, post-training and at three-month follow-up, to assess change in staff knowledge, confidence and worries in the assessment and treatment of trauma.

Results: Overall, 21 staff members completed pre-training questionnaires, 13 completed post-training questionnaires and seven staff completed questionnaires three-months later (follow-up). The results indicate that confidence and knowledge about working with complex trauma increased following the training session and worries about working with complex trauma decreased. The majority of the significant change occurred between pre-and post-training.

Discussion: In order to sustain the benefits of training for longer in the future, a number of recommendations were made to the service. This included: 1) running the training again; 2) discussing any likely difficulties to using the materials from training on the day; 3) providing supervision and more written resources to support staff in using their training; 4) identifying a staff member to promote the idea of working with trauma on the ward and generate more interest in taking part in future training; 5) running both "introductory" and "top-up" sessions for different levels of staff experience; 6) and evaluating future training. The ward manager would like to run the training again and has devised a plan to take the idea forwards in light of the above recommendations.

Appendix Q. Approval letter from NRES Committee

NHS
Health Research Authority

NRES Committee South Central - Berkshire B
Whitefriars
Level 3, Block B
Lewins Mead
Bristol
BS1 2NT

Telephone: (0117) 3421382

10 June 2015

Ms Paula Robinson
Doctorate in Clinical Psychology
The University of Bath
Claverton Down
Bath BA2 7AY

Dear Ms Robinson

Study title:	**Injury attributions, shame and self-criticism in Acquired Brain Injury and Traumatic Brain Injury survivors**
REC reference:	**15/SC/0349**
IRAS project ID:	**169556**

Thank you for your letter of 7 June 2015, responding to the Proportionate Review Sub-Committee's request for changes to the documentation for the above study.

The revised documentation has been reviewed and approved by the sub-committee.

We plan to publish your research summary wording for the above study on the HRA website, together with your contact details. Publication will be no earlier than three months from the date of this favourable opinion letter. The expectation is that this information will be published for all studies that receive an ethical opinion but should you wish to provide a substitute contact point, wish to make a request to defer, or require further information, please contact the REC Assistant Mr Wai Yeung, nrescommittee.southcentral-berkshireb@nhs.net. Under very limited circumstances (e.g. for student research which has received an unfavourable opinion), it may be possible to grant an exemption to the publication of the study.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Appendix R. Brain injury survivor questionnaire pack

Participant ID number: _____

Dear Participant,

Thank you for kindly agreeing to take part in this study.

People with brain injuries frequently experience psychological difficulties such as anxiety and depression after their brain injury. This can be linked to patterns of negative thinking, but not everybody reacts in this way. Previous research about illnesses and injuries has highlighted that beliefs about the causes of illnesses are also important in recovery and satisfaction with life.

Your answers to these questionnaires will help us to gain a more thorough understanding of the roles of beliefs about injury (injury attributions) in how psychological distress following brain injury is experienced. We hope that the study results could be used to inform future psychological and neuro-rehabilitation interventions.

The interview and questionnaires may take up to 60 to 90 minutes to complete, depending on the number of breaks you may like to take. Please ask questions about anything that you are unsure of, as you go along.

Sometimes people have fragmented memories about what happened, and their understanding of events is based on what they have been told. Please answer as best as you can.

We very much appreciate you taking the time to complete the questionnaires and helping us with our research.

With our best wishes,
The Research Team

Demographic Information

Age:

Gender: male / female

Ethnicity:

Beliefs about Brain Injury: Part A

You have volunteered today to discuss your experience of brain injury. A member of the research team will first ask you about the circumstances of your brain injury, including your understanding of what happened and why.

My Brain Injury circumstances	Tick if applies to you
Did your injury occur as a result of a road traffic accident? If yes, were you:	
a) The driver of the car or motorcycle	
b) A passenger in the car or motorcycle	
c) A cyclist	
d) A pedestrian	
e) Other (please specify):	
Did your brain injury occur as a result of a different type of accident? If yes, was it a:	
a) Trip/fall	
b) Assault	
c) Sports injury	
d) Other (please specify):	
Did your brain injury occur as a result of something not previously mentioned?	
a) Aneurysm or haemorrhage (brain bleed)	
b) Stroke	
c) Encephalitis (inflammation of the brain)	
d) Toxic exposure	
e) Hypoxia	
f) Tumour	
g) Other (please specify):	

They will then ask you to complete the following questions. Sometimes people have fragmented memories about what happened, and their understanding of events is based on what they have been told. Please answer as best as you can.

1) To what extent do you remember what happened at the time of your brain injury? Please circle one number.

0 1 2 3 4 5 6 7 8 9 10

Not at all **Extremely**

2) To what extent do you believe that you were responsible for what happened? Please circle one number.

0 1 2 3 4 5 6 7 8 9 10

Not at all **Extremely**

3) To what extent do you believe that others were responsible for what happened? Please circle one number.

0 1 2 3 4 5 6 7 8 9 10

Not at all **Extremely**

4) To what extent do you believe that no one or circumstances were responsible for what happened? Please circle one number.

0 1 2 3 4 5 6 7 8 9 10

Not at all **Extremely**

5) To what extent do you believe that you could have avoided what happened? Please circle one number.

0 1 2 3 4 5 6 7 8 9 10

Not at all **Extremely**

6) To what extent do you believe that others could have avoided what happened? Please circle one number.

0	1	2	3	4	5	6	7	8	9	10
Not at all										**Extremely**

7) To what extent do you blame yourself for what happened? Please circle one number.

0	1	2	3	4	5	6	7	8	9	10
Not at all										**Extremely**

8) To what extent do you blame others for what happened? Please circle one number.

0	1	2	3	4	5	6	7	8	9	10
Not at all										**Extremely**

9) To what extent do you blame circumstances beyond your control for what happened? Please circle one number.

0	1	2	3	4	5	6	7	8	9	10
Not at all										**Extremely**

Beliefs about Brain Injury: Part B

Many different things can cause brain injury. We are interested in what you think was the cause of your brain injury. Below is a list of possible causes of brain injury. Please indicate how much you agree or disagree that they were causes for you by ticking the appropriate box.

Possible Causes of My Brain Injury	Strongly Disagree	Disagree	Neither agree or	Agree	Strongly Agree
Diet or eating habits					
Cholesterol					
Smoking					
Drinking					
Prescribed drugs					
Illicit drugs					
Tiredness					
Distraction					
Stress					
Poor road conditions					
Poor driving visibility					
Driving the car too fast					
Risk-taking behaviour					
Chance or bad luck					
Wrong place at the wrong time					
Ageing					

In your opinion, what was the one main cause of your brain injury? You might use one of the causes above or you may have an additional idea of your own.

The main cause of my brain injury was:
……

PHQ-9 Mood Questionnaire

Over the last 2 weeks, how often have you been bothered by any of the following problems? *(Use "✓" to indicate your answer)*	**Not at all**	**Several days**	**More than half the days**	**Nearly every day**
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

If you checked off *any problems*, how *difficult* have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all	**Somewhat difficult**	**Very difficult**	**Extremely difficult**
☐	☐	☐	☐

GAD-7 Mood Questionnaire

Over the last 2 weeks, how often have you been bothered by any of the following problems? *(Use "✓" to indicate your answer)*	**Not at all**	**Several days**	**More than half the days**	**Nearly every day**
1. Feeling nervous, anxious or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid as if something awful might happen	0	1	2	3

If you checked off *any problems*, how *difficult* have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all	**Somewhat difficult**	**Very difficult**	**Extremely difficult**
☐	☐	☐	☐

Self-Evaluation Questionnaire (FSC/ASRS)

When things go wrong in our lives or don't work out as we hoped, and we feel we could have done better, we sometimes have negative and self-critical thoughts and feelings. These may take the form of feeling worthless, useless or inferior. However, people can also try to be supportive of themselves.

Below are a series of thoughts and feelings that people sometimes have. Read each statement carefully and circle the number that best describes how much each statement is true for you.

When things go wrong for me: *(please circle a number)*		**Not at all like me**	**A little bit like me**	**Moderately like me**	**Quite a bit like me**	**Extremely like me**
1.	I am easily disappointed with myself.	0	1	2	3	4
2.	There is a part of me that puts me down.	0	1	2	3	4
3.	I am able to remind myself of positive things about myself.	0	1	2	3	4
4.	I find it difficult to control my anger and frustration at myself.	0	1	2	3	4
5.	I find it easy to forgive myself.	0	1	2	3	4
6.	There is a part of me that feels I am not good enough.	0	1	2	3	4
7.	I feel beaten down by my own self-critical thoughts.	0	1	2	3	4
8.	I still like being me.	0	1	2	3	4
9.	I have become so angry with myself that I want to hurt or injure myself.	0	1	2	3	4
10.	I have a sense of disgust with myself.	0	1	2	3	4
11.	I can still feel lovable and acceptable.	0	1	2	3	4

12.	I stop caring about myself.	0	1	2	3	4
13.	I find it easy to like myself.	0	1	2	3	4
14.	I remember and dwell on my failings.	0	1	2	3	4
15.	I call myself names.	0	1	2	3	4
16.	I am gentle and supportive with myself.	0	1	2	3	4
17.	I can't accept failures and setbacks without feeling inadequate.	0	1	2	3	4
18.	I think I deserve my self-criticism.	0	1	2	3	4
19.	I am able to care and look after myself.	0	1	2	3	4
20.	There is a part of me that wants to get rid of the bits I don't like.	0	1	2	3	4
21.	I encourage myself for the future.	0	1	2	3	4
22.	I do not like being me.	0	1	2	3	4

Satisfaction with Life Scale (SWLS)

These questions are about how satisfied you are with your life now. Below are five statements that you might agree or disagree with. Using the scale below from 1 to 7, please show your agreement with each item by placing the most appropriate number on the line next to that item.

Response key:

1 = Strongly disagree

2 = Disagree

3 = Slightly disagree

4 = Neither agree nor disagree

5 = Slightly agree

6 = Agree

7 = Strongly agree

	Response **Please write a number (1 - 7)**
1) In most ways my life is close to ideal	
2) The conditions of my life are excellent	
3) I am satisfied with my life	
4) So far I have got the important things I want in life	
5) If I could live my life over, I would change almost nothing	

Please read the following advice carefully:

If you feel upset or distressed during the session, please let the researcher know immediately. If you feel upset or distressed after completing this questionnaire pack, then please don't hesitate to contact a member of the research team (using the contact details on the Participant Information Sheet) or a member of your healthcare team to talk things through.

If your answers to any of the questions in this form indicate that you are experiencing thoughts about harming yourself, then please consider contacting your GP or other member of your healthcare team without delay to discuss options for further support. If your answers lead us to feel especially concerned about your wellbeing, then we will discuss this with your healthcare team so that they can make contact with you and your GP, to discuss your preferences and needs for additional support.

If you feel the need to speak with somebody urgently, then please consider contacting the Samaritans on **08457 909090**

Thank you so much for your time in taking part in this study.

Appendix S. Brain injury survivor participant information sheet

Participant Information Sheet

Injury attributions, shame and self-criticism in Acquired Brain Injury and Traumatic Brain Injury survivors

We would like you to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

Why have I been invited to take part and why is this study being done?
We are inviting people who have experienced brain injury to take part in this research. We are interested in gaining a better understanding of the emotional experiences of brain injury survivors. This projects aims to explore links between the thoughts and beliefs people have about what happened to them (brain injury attributions), and the emotions (feelings) they experience now. In addition, the project and findings will also contribute to the lead researcher's Doctorate in Clinical Psychology (PhD).

Do I have to take part?
No. Taking part in this study is voluntary. If you decide to take part and then later change your mind, either before you start the study, during it or afterwards, you can withdraw without giving your reasons and, if you wish, your data will be destroyed, up until the point it is made anonymous. Choosing to take part in the study or declining to take part will not affect the care that you are currently receiving or likely to receive in the future.

What will be asked of me if I take part?
If you choose to take part a member of your clinical team will pass on your name and preferred contact details to Paula Robinson, Trainee Clinical Psychologist. Paula will give you a call to discuss and arrange a time for you to take part in the study, either at your clinical team base or at your home. Participants are only required to participate in one session, which is expected to last approximately 60 to 90 minutes. The session is split into three parts:

1. Paula will go over the details of the study with you, answer any questions you might have and ask you to sign a consent form to take part in the study if you want to continue.
2. Paula will ask you to describe the circumstances of your brain injury. You will then be asked to complete five short questionnaires about your beliefs and feelings, with Paula's help if needed.
3. At the end of the study Paula will ask you how you found the study and give you the opportunity to give feedback should you wish to.

You will be offered a £5 voucher as a 'thank- you' for participating in the study.

Will my responses be kept confidential?
Yes. All information which is collected about you during the course of the research will be kept confidential and will conform to the Data Protection Act of 1998 with respect to data collection, storage and destruction. This means that all paper-based and electronic information will be locked and password protected with access restricted to study personnel. Any information about you will have your name and address removed so that you cannot be identified from it.

The only time we may break this confidentiality is if you tell us something which makes us worry that you or someone else is at risk of harm. In the unlikely circumstances, we would talk to you first, and then talk to your care team to ensure you receive the appropriate care, support, or advice.

We hope to report our findings in academic/health related journals and present them to relevant health professionals at meetings and conferences. The findings will also contribute to Paula Robinson's Doctorate in Clinical Psychology. You will not be identified in any reports or publications arising from the study. You will be offered the opportunity to see the results for the whole study if you wish.

Are there any advantages/benefits to taking part?
We cannot promise the study will help you directly but the information collected from you and other participants may help to improve our understanding of the emotional experiences of brain injury survivors to inform the application of future psychological therapies.

Are there any risks to taking part?
We consider there to be minimal disadvantages e.g. the inconvenience of participating in an interview session and completing the questionnaires at your clinical team base. However, the sessions will be arranged so that they cause the least disruption and inconvenience to you and arrangements can be made for a home visit by a member of the research team. If at any time during session you feel upset please raise it with Paula immediately. You do not have to answer any questions you do not feel comfortable with and you can decide to stop the research session at any time. In the event that any distress is experienced at the end of the session, Paula will help you to access further support.

What happens to my responses after the study?
Questionnaires will be retained in a locked department within the university linked only to participant numbers for a maximum of 10 years after the study, in accordance with the 1998 Data Protection Act. You can withdraw from the study and request your responses, up until the time that your responses are anonymised. At this time all paper information will be shredded and only anonymous numerical data will be retained until the submission of the study to the university.

What to do next if I'm interested?
If you would like to participate please inform a member of your care team that you would like your contact details to be passed on. Alternatively, you can contact the research team directly:

Paula Robinson Trainee Clinical Psychologist Clinical Psychology Dept The University of Bath Claverton Down Bath, BA2 7AY **pr362@bath.ac.uk** **Tel: 07597703830**	**Dr Leon Dysch** Clinical Neuropsychologist Community Neuro and Stroke Service, Ground Floor Trust HQ, St Martins Hospital, BA2 5RP **leon.dysch@sirona-cic.org.uk**	**Professor Paul Salkovskis** Academic Supervisor Clinical Psychology Department The University of Bath Claverton Down Bath, BA2 7AY **P.M.Salkovskis@bath.ac.uk**

What if there is a problem?

If you have any concerns from taking part in the research, please contact a member of the research team (details provided above). If you remain unhappy and wish to complain formally, you can do this through the NHS Complaints Procedure (details can be obtained from your Primary Care/NHS Trust) or you can contact the Research Governance Sponsor of this study: Research Governance, The University of Bath, Claverton Down, Bath, BA2 7AY.

How do I find out the results of the study?

If you decide to take part in the study, you will be offered the opportunity to see the results of the whole study at the following website: http://www.bath.ac.uk/psychology/research/clinical-psychology/

Appendix T. Brain injury survivor participant consent form

Patient Identification Number:

CONSENT FORM

Title of Project: **Injury attributions, shame and self-criticism in acquired brain injury and traumatic brain injury survivors**

Name of Researcher: **Paula Robinson**

Please initial all boxes

1. I confirm that I have read and understand the information sheet dated **01/06/2015 (version 2.0)** for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected. ☐

3. I understand that the data collected during the study may be looked at by individuals from the University of Bath, where it is relevant to my taking part in this research. I give permission for these individuals to have access. ☐

4. I give permission for the anonymous information I provide to be stored securely at the University of Bath for the duration of 10 years after the study is completed. ☐

5. I agree to the researcher using the information provided to be reported as a study and I understand that all data written or otherwise will be made anonymous ☐

6. I agree to take part in the above study. ☐

Name of Participant	Date	Signature
Name of Person	Date	Signature taking consent.

<u>Appendix U.</u> Researcher script and prompts for the interview with participants.

- Introductions.
- Recap overview of the study. *"People with brain injuries frequently experience psychological difficulties such as anxiety and depression after their brain injury. They can also find it hard to be kind to themselves and have lots of self-critical thoughts. Previous research about illnesses and injuries has highlighted that beliefs about the causes of illnesses and feelings of responsibility (attributions) are also important in recovery. If you choose to take part, your answers to these questionnaires will help us to gain a more thorough understanding of how psychological distress following brain injury is experienced. We hope that the study results could be used to inform future psychological and neuro-rehabilitation interventions."*
- Go through information sheet for participants and check understanding of what is involved, confidentiality and anonymity etc.
- Prompt participant to ask questions about anything they are unsure of.
- Complete consent form.
- Introduce procedure. *"The interview and questionnaires may take up to 60 to 90 minutes to complete, depending on the number of breaks you may like to take. Please ask questions about anything that you are unsure of, as we go along".*
- Make a plan for breaks, depending on anticipated fatigue levels. Ask about any hearing impairments or visual difficulties. Arrange the environment to minimise distractions and to ensure the best possible comfort levels.
- Give the questionnaire pack to the participant.
- Complete demographic information.
- Complete "My Brain Injury Type and Circumstances"
- Introduce Brain Injury Beliefs questions. *"You have volunteered today to discuss your experience of brain injury. Sometimes people have fragmented memories about what happened, and their understanding of events is based on what they have been told. Please answer as best as you can. I would first like to ask you about the circumstances of your brain injury, including your understanding of what happened and why."*

- Complete questions about brain injury beliefs and causes.
- Prompt participant if they want a break. Check pacing of questions.
- Complete mood questionnaires (PHQ-9 and GAD-7).
- Prompt participant if they want a break. Check pacing of questions.
- Complete “Forms of Self-Criticising/Attacking & Self-Reassuring Scale”.
- Debrief with the participant. Prompt for any questions. Ask about the experience of taking part in the interview. Ask about how they are feeling. Go through advice section for what to do if they have any concerns or worries following taking part. Re-iterate that the contact numbers are on the information sheet.